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PRIMARY TUBERCULOSIS OF THE KIDNEY, WITH ESPECIAL REFERENCE TO ITS MANIFESTATIONS IN INFANTS AND CHILDREN.

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THE subject of this paper was suggested by the post-mortem findings in the following case:

CASE I.—Katie H., aged seven months, presented a good family history. The child first came under observation on the 2d of October, 1893. There had been no illness prior to this date. Until the age of three months the feeding had been limited to the breast. For a very brief period in this time the child had been suckled by an apparently healthy wet-nurse.

From the age of three months until the above date she had received cow's milk in addition to that from the breast. Two nights previous to the date of presentation the child became feverish, had loose, yellow, offensive stools, containing flakes and mucus; six movements of a like character the following day accompanied by pain, and one movement on the 2d of October without pain. The temperature was normal, the child did not seem ill, but was quite anæmic, a condition which had existed since birth, and one that applied to the only other child in the family. Three days later the child was reported well.

On the 25th of October the child was again seen. Until two days previous she had apparently been perfectly well. She had then become feverish and restless. There had been no vomiting, but diarrhœa with green, foul-smelling stools, containing flakes and mucus. She had taken nourishment well. There had been no convulsions, no cough, and no difficulty in swallowing.

The skin and mucous membranes were very pale. She was restless during sleep, constantly rubbed her head and ears, cried out suddenly; she suffered pain when the

bowels were moved or the urine voided. Micturition was free, not frequent. The temperature was 104.6° F.; pulse, 168, and bounding. There was a slight, glairy, mucous discharge from the vagina. The abdomen was not much distended, rather soft, no tenderness. Examination of the heart and lungs was negative. Two days later the abdomen was more distended and tympanitic, and there seemed some special tenderness in the lower abdominal region, but the child seemed to suffer pain in any movement of the body. The temperature was 104° F.; pulse, 164, and respiration, 30. On the fifth day she developed marked twitchings of the muscles of the forearm and hand, and later the muscles of the legs became involved. The child awakened from sleep suddenly, crying out and continuing to cry ceaselessly for a period of three or four hours. The twitchings were more marked during these paroxysms. Later, quite marked retraction of the head developed, the muscles of the back of the neck were hard, the eyelids were partially closed; at times the eyeballs rolled upward. There was no strabismus or change in the pupils at any time. The child vomited but once during the illness. The temperature throughout fluctuated between 101° F. and 105° F., the pulse-beats between 160 and 170, the respirations, until the tenth day, between 25 and 30; but at this time, simultaneously with the development of a severe, paroxysmal cough and moist râles throughout both lungs, they suddenly advanced to 60, and fluctuated between this and 80 until the end. There were no convulsions.

Autopsy.—Heart and pericardium normal.

The lower lobe of the left lung was the seat of a pneumonia, the right lung was congested. There was one slightly enlarged bronchial gland. The mesenteric glands were generally enlarged, but not at all caseated. All the abdominal organs save the right kidney were normal.

Examination of the brain was forbidden.

The right kidney (Plate I.) is several times the size of the normal kidney. It measures nearly five inches in length, two and three-fourths in breadth, and one and one-half inches in thickness. The surface is irregularly nodulated. There is a quite extensive fibro-adiposis of the adipose capsule, and the same process extends to the external covering of the ureter. The adipose capsule is with difficulty separated from the true kidney capsule, which is also much thickened. It is tightly adherent to the glandular substance in some places. At the topmost point of the convexity, just over a point of beginning softening, it is elevated and detached, and adhering to the surface at this point are portions of degenerated kidney substance. On section, the kidney seems to consist of a mass of various-sized tuberculous nodules. Very little healthy kidney structure is apparent. The cortex seems entirely destroyed. The apices of some of the pyramids have the appearance of being only partially infiltrated. The pelvis is small, being infringed upon by the excessive tuberculous growth. Its mucous membrane is smooth, not apparently thickened; it seems normal. The ureter and bladder are normal.

Sections of the kidney showed scarcely any areas of healthy tissue. The blood-vessels were thickened, and there were large masses and scattered round cells with extensive areas of cheesy degeneration in the most advanced portions. Sections of the thickened capsules showed some areas of cheesy degeneration, apparently extending from the softened adjacent kidney structure. They also showed great increase in the fat and fibrous elements. Sections of the pelvic mucous membrane were negative. Sections were stained for Koch's bacillus, with negative results.

Notwithstanding this last fact, I believe there can be no doubt of the tuberculous character of the condition from the fact of the discovery of such diffuse, exudative, and proliferative changes marked by decided tendency to early and extensive caseation. The thought suggested itself that

the case might be one of gumma of the kidney; but, in addition to the absence of any suggestive history, as well as of suspicious lesions of other organs (liver, spleen), there was the more positive disproof of syphilis in the appearance of the kidney itself. The process was evidently too diffuse, and the caseation was altogether unlike the degenerative changes one observes in this or other organs in connection with syphilis.

In addition to this case a prolonged and thorough search of the literature has resulted in the finding of fifty-four cases occurring in children under the fourteenth year. The reports of many of these are very incomplete. Cases XXXI., XXXII., XXXIV., XLIII., and XLV. of the series, for instance, consist only in references to cases which had been observed by the authors. In Cases III., XXX., XL., XLII., and XLV. there must exist some doubt as to the diagnosis, since it is based solely on symptomatic evidence. In many others only the *post-mortem* records are given, and some of these but briefly. All cases have been accepted, and are here presented as cases of primary renal tuberculosis, because they have been so presented elsewhere.

Primary tuberculosis of the kidney is synonymous with the scrofulous degeneration of the old writers. It has been described under various names, such as renal or nephro-phthisis, chronic tuberculosis, cavernous tuberculosis, scrofulous caseating tuberculosis, etc.

The history of tuberculosis of the kidney is brief. The condition was first carefully described by Morgagni and Baillie, and later by G. L. Boyle. Following upon these are the observations of Howship, Rayer, and Ammon, the last of whom says, in reporting a case in 1830, that there had been but a passing reference to primary renal tuberculosis prior to that time. More recently the literature has multiplied. It has dealt largely with the surgical aspect of the question. The pathological anatomy has received especial attention at the hands of Cornil and Babes, Durand-Fardel, Cayla, Vigneron, Charcot and Bouchard, Duret, and others. Very few text-books give the subject more than brief notice. Fagge, in his "Practice of Medicine," and Charcot, Bouchard, and Brissaud, in their recent "Traité de Médecine," have the best text-book descriptions observed in the course of these studies. Gaultier, in his Paris "Thesis," has treated especially the subject of primary tuberculosis, but the condition, as it occurs in children, does not seem to have received much attention.

ETIOLOGY.

The *causes* are chiefly those of tuberculosis in general. Heredity, catarrhal inflammations, lowered vitality, trauma, stone in the kidney, the influence of soil and locality, all pave the way for the reception and development of the bacillus of Koch, which finds its way into the organism through the air, or by means of food and drink. Sex is a predisposing factor. The weight of opinion finds the condition much more common in males than in females. In fifteen cases of all ages reported from the Middlesex Hos-

pital, nine were in males and six in females. Rosenstein, after an analysis of twenty cases, remarks that men are affected more often than women. Ebstein found it twice as common in males as in females. F. J. Roberts makes a like statement, and Osler finds it to be more frequent in males than in females. In the fifty-five cases here presented the sex is mentioned in forty-six; of this number thirty-two are boys and fourteen are girls, suggesting that in the earlier years of life the male sex is more commonly affected than in adult life. In support of this also, in one hundred and three cases collected by Facklam, including all ages, but chiefly adults, thirty occurred in males and seventy-three in females.

Age.—Primary tuberculosis of the kidney is relatively uncommon in childhood, and exceedingly rare in infancy. In ten years, at the Middlesex Hospital, in two thousand six hundred and ten autopsies there were forty-four cases of renal tuberculosis; twenty-nine were of the miliary and fifteen of the primary form. Of these fifteen, seven occurred in persons over thirty years of age; five occurred in persons between eleven and thirty years of age; three occurred in adults whose ages were not given. There was not one instance under eleven years.

Rosenstein thinks it most common in middle and advanced life. In twenty cases, observed by himself, he found in the first ten years of life, one; between the twentieth and thirtieth years, six; between the thirtieth and fortieth years, three; between the fortieth and fiftieth years, six; and between the fiftieth and sixtieth years, four.

Facklam's one hundred and three cases, lately referred to, were cases requiring nephrectomy. Seven per cent. of his cases occurred between birth and the tenth year; 9.4 per cent. between the tenth and twentieth years; 37.6 per cent. between the twentieth and thirtieth years; 37.6 per cent. between the thirtieth and fortieth years; seven per cent. between the fortieth and fiftieth years; and 1.2 per cent. between the fiftieth and sixtieth years.

Henry Morris says scrofulous kidney is at least somewhat exceptional below the tenth year.

F. J. Roberts found it most common in the middle period of life, and says that the earliest age reported, prior to 1879, was three and one-half years.

Dr. J. Walter Carr found in the post-mortem records of one hundred and twenty children dead from tuberculosis in the Victoria Hospital for children, Chelsea, only two cases in which the disease began in the kidneys. This he thought an uncommonly large percentage, as he believed the condition to be rare.

Dr. C. Bohm, of Stettin, writing in 1884 says, "In the new literature I have not been able to find any case of nephro-phthisis in a child. The observations which have been published since 1877 concern adults exclusively."

Aldibert found in a collection of twelve cases occurring in children,

four occurring between two and a half and four years; two between seven and eight years; three between ten and eleven years; and three between twelve and fourteen years. In the fifty-five attached cases there are but two under one year, the one a boy of three months upon whom Bardenheuer did a nephrectomy with fatal result, and the other my own case. These cases, therefore, show that under one year there were two cases; between one and two and a half years, three cases; between two and a half and five years, ten cases; between five and ten years, eleven cases; and between ten and fourteen years, twenty cases. There are nine cases reported in which no age is given.

MODE OF INFECTION.

One observes, in studying the literature, that great diversity of opinion exists as to the starting-point of uro-genital tuberculosis. One class denies the existence of a primary lesion of the kidneys, attributing its development to pre-existing disease in the genital or lower urinary organs. In other words, they establish for it an ascending course. A second class, taking an entirely opposite view, hold that the kidney is always the organ of primary involvement, the lower urinary and genital organs being secondarily involved,—that is, the course is descending. A third class admits the possibility of both the ascending and the descending forms.

Rokitansky, Hirschfeld, Lancereaux, and Klebs hold to the first of these theories, believing the beginning, in the great majority of cases, to be in the epididymis, seminal vesicles, or prostate, and that it is propagated from these to the urinary organs above. Simon, of Hamburg, tries to prove, by statistics, that this is the general mode of infection. In fourteen autopsies he found tuberculosis of the kidneys nine times, of the bladder thirteen times, of the prostate twelve times, of the epididymis twelve times, and of the seminal vesicles thirteen times. Steinthal adheres to the descending course, basing his opinion upon cases which he had observed in Geneva, together with a few cases taken from the literature.

Ziegler adopts the intermediary opinion, which admits the possibility of both the ascending and the descending forms. Camargo, desiring to arrive at some definite conclusion in the matter, made a review of all the cases upon which autopsies had been performed in Geneva in the past fifteen years. He found that in three thousand autopsies the records showed twenty-nine cases of chronic tuberculosis of one or both kidneys. Of these, twenty-five showed tuberculosis of the bladder, eleven showed tuberculosis of the genital organs. In these eleven cases, also, there was tuberculosis of the bladder, and they are included in the above twenty-five. In the twenty-five cases, therefore, of combined tuberculosis of the kidney and bladder there were fourteen in which the genital apparatus was not involved. He adds to this series a case of his own in which the kidney and bladder alone were involved, and in the light of these statistics concluded that in fifteen cases the tuberculosis of the bladder had developed after that of the kid-

ney. He inclines to the belief also that in the eleven other cases the starting-point was in the kidney. He believes it possible, but very exceptionally the case, that the disease is propagated from the genital organs to the bladder, and from thence to the kidney. Guyon and Duret believe the ascending form to be the more common.

Charcot and Bouchard, in their "Traité de Médecine," say, "It is certain, first, that renal tuberculosis may exist alone; second, that it may be developed at the same time as is tuberculosis of the pelvis; third, that the ureter participates frequently at the same time as the pelvis and kidneys. In general, in these three categories of cases tuberculosis has started in the kidneys." Further on they say, "We admit with Rayer that urinary tuberculosis shows, in the great majority of cases, a descending course." While they admit that each or any of the genito-urinary organs may be the starting-point in localized or extending tuberculosis, they believe the kidneys to be most often the seat of the primary focus. Vigneron believes the ascending or, as he calls it, the secondary form, the more common, especially in men. Dickinson adheres to the primary form, and in this view is supported by Bruce-Clark. Israel finds the descending form the more common. Roberts found the ureter affected thirty times in thirty-two kidney cases, and the bladder twenty-one times. Weigert advocates the ascending form, and Hamilton, who quotes him, inclines to the descending. Dr. Leo Szumam believes in a one-sided, local, primary disease, and that any existing bladder condition is nearly always secondary to the kidney trouble. Du Pasquier thinks renal tuberculosis of vascular origin is frequent; but, where lesions of the bladder exist at the same time with infection of the kidney, he considers the disease primary in the bladder in the vast majority of instances. He says also that where one kidney only is affected in the ascending form it is merely a matter of chance, and depends upon the point in which the ulceration originates. Aldibert believes in the greater frequency of the descending form, especially referring to cases observed in children, and he finds tuberculosis of the genital organs relatively rare in children.

Du Pasquier thinks the tuberculous infection ascends to the kidney as frequently by a process of extension along the course of the ureter as by elevation through the medium of the urine. It has been experimentally proven that the tuberculous infection may ascend the ureter, by one or the other process, by the experiment of Albarran. He ligated a ureter in its lower portion, and just above the point of ligation injected into it a pure culture of tubercle bacilli. Two months later the animal died of general tuberculosis, with the lesions of ascending tuberculosis in the first kidney, and those of infectious descending tuberculosis in the other. It would seem, however, that this course is infrequent, since Albarran is the only person who has ever succeeded in producing ascending infection experimentally. Cayla made similar experiments with negative results, and by injecting cultures into the bladder of guinea-pigs failed to produce lesions in

the kidney. In the light of these results he concludes that the ascending form is impossible. Du Pasquier has conducted similar experiments with negative results, but in the light of Albarran's experiment and his own clinical observations, he believes in an ascending infection.

The deductions which I am able to make from the fifty-five cases here presented, as to the probable starting-point of uro-genital tuberculosis in children, are in full accord with those of the authors who hold to the descending form. In the entire series there are scarcely any cases that suggest an ascending extension, and these few can be as justly classified under descending extension.

In one of the cases only, Case XLI., has involvement of the genital organs been noted, and in this case Kulakowski, who reports it, thinks the disease originated in the kidney.

In the fifty-five cases there are eleven without post-mortem or operative records, and eight in which the descriptions are incomplete. In the remaining thirty-six, from which deductions can be made, the kidney is alone affected of the urinary organs eighteen times, the kidney and ureter alone twice, and the kidney, ureter, and bladder together sixteen times. Among these sixteen cases there is but one—Case XXI. of the series—which seems a probable instance of primary involvement of the bladder. Schmid, who reports Case LV., seems to think that there is some question as to whether the condition was or was not primarily one of tuberculous cystitis with secondary involvement of the right kidney. His description of the kidney lesion is not very full, but the early and subsequent history of the case would suggest secondary rather than primary bladder involvement. There are only four of the sixteen bladder cases in which there is any extensive disease of the organ. In the majority the area of involvement is limited to the trigone and the neck of the bladder. In all cases, save Case XXI., already referred to, the tuberculous process seems to have been most advanced in the kidney. From these facts it is strongly suggested that in children genital tuberculosis is exceptional, that cases of ascending infection occasionally, but rarely, occur, and that nearly all cases are of the descending type,—that is, primary in the kidney.

The disease is most often unilateral, nearly always so in the beginning. When both kidneys are involved it is more advanced in one than the other. In the accompanying cases one kidney is found affected twenty-five times, and both, thirteen times. In the remaining cases the records are deficient. Of the twenty-five single cases the right kidney is found affected twelve times, the left twelve, and in one case the side is not specified. In the thirteen cases in which both kidneys are involved the right seems primarily affected six times, the left three, and in four it is impossible to determine. In the thirty-three cases, therefore, in which the records give evidence, the right was first involved eighteen and the left fifteen times. This finding accords with the view held by most writers. Facklam, who, unlike other writers, found females more often affected than males, also found the left

kidney more frequently the primary seat than the right. Borrell was able to produce primary renal tuberculosis experimentally by injecting cultures into the aorta.

Duret compares the kidneys, the essential organs of cleansing, to a filter which collects the microbes in their passage through the circulation. In primary tuberculosis of the kidney Koch's bacillus, traversing the entire organism, is retarded upon the filter, where it forms colonies, as the result of which tubercles are developed in the region of the blood-vessels and glomeruli. Durand-Fardel and Baumgarten are said to have recognized the presence of the bacillus tuberculosis in the blood-vessels before there was any tuberculous deposit.

In view of the facts referred to it is apparent that primary renal tuberculosis may occur by hæmatogenic infection without discoverable tuberculous lesions in other parts of the body, and inquiry is directed by this conclusion to the question of the mode of entrance of the bacilli into the circulation in such cases. Without entering into the large and interesting studies of cryptogenetic tuberculous infection it will be well in this place to consider briefly the possibilities and modes in which such might occur. Reference may be made in the first place to the instances of general miliary tuberculosis without discoverable localized foci from which infection could have taken place. It is, of course, probable in such cases of sudden and extensive infection of the blood with tubercle bacilli that some localized lesion had existed and been overlooked. Careful investigations in such cases would doubtless often disclose the existence of a limited focus of tuberculosis in a lymphatic gland, the testicle or epididymis, the prostate gland, the tubes or ovaries, the mucosa of the nose, or in other regions where it might be overlooked. It is of interest also in this connection to refer to the recent investigations of Dieulafoy, Krückmann, Tusseau, and others which demonstrate the comparative frequency of unsuspected tuberculosis of the tonsils. Cases, however, of localized hæmatogenic tuberculosis in a single organ would point rather to infection with a lesser number of bacilli and of a more gradual character than would be likely to occur from the sudden discharge into the blood of the contents of a small tuberculous focus. I am led to think, in this connection, of the possibility of the entrance of tubercle bacilli into the circulation without the development of localized lesions at the portal of entrance. That such an occurrence is possible need scarcely be detailed at length, in view of the investigations of Loomis and others, and in view of the general experience of pathologists showing the frequency of caseous tuberculosis of the bronchial glands without discoverable lesions in the lungs or elsewhere. There is little doubt but that in such instances the bacilli penetrate the alveolar walls and, gaining access to the lymphatic channels, are conveyed to the bronchial glands without having occasioned disease at the point of entrance. The same possibility of cryptogenetic infection through the gas-

tro-intestinal tract is evidenced by the frequency of tuberculous disease of the mesenteric glands without the occurrence of intestinal lesions.

While these facts seem incontrovertible, it must be admitted that infections of this kind have not been demonstrated to be of frequent occurrence; at least, in so far as tuberculous lesions at a distance from the possible portals of entrance are concerned. Nevertheless, the possibility exists, and it must be borne in mind in cases of tuberculous disease of deep-seated organs in which the mode of infection seems obscure.

PATHOLOGICAL ANATOMY.

The tubercles, once begun, usually develop with marked rapidity; the glomeruli and tubules become involved, caseous and purulent degenerations occur, the softened tubercle is eliminated into the pelvis, the pelvis participates in the inflammation, a consecutive suppurating tuberculous pyelitis develops, and thus the entire kidney structure is transformed into a tuberculous mass.

The two kidneys may be simultaneously infected, but usually the disease advances more rapidly in one than in the other. Again, it is possible for one kidney to be secondarily infected by a process of extension from the other kidney. The tuberculous virus is conveyed to the bladder by the urine, the mucous membrane of the trigone becomes tuberculous and thickened, the ureter from the healthy kidney is infected, its mucous membrane thickened, its lumen obstructed, and a damming up of the urine results, and a consecutive dilatation of the ureter and pelvis. The tuberculous virus is thus elevated to the level of the kidney, brought in contact with the pelvis of the kidney, and infection follows. The same result may be obtained by dilatation from vesical retention. Admitting this process of extension, it is not essential that disease of the bladder should exist in order to involve the second kidney through the medium of the bladder and ureters. The mucous membrane of the bladder is not a very delicate membrane, relatively speaking, and there seems abundant evidence that it can remain for a long time in contact with the tuberculous virus without becoming infected.

It is reasonable, therefore, to suppose that in an advanced stage of unilateral degeneration, where there is extensive caseation with suppuration and the discharge of thick, purulent, shredded urine, temporary blocking of the urethra might readily occur without infection of the bladder, but with a consequent dilatation of the bladder, ureter, and pelvis. The infected urine would thus be elevated to the kidney level, and brought in contact with a kidney probably the seat of a parenchymatous nephritis, and therefore predisposed and much more susceptible than the lower urinary mucous membrane. The possibility of ascending infection of this character must be admitted, and is illustrated by the experimental evidences of Albarran, above recited.

The external surface of the kidney, in some instances, conveys nothing.

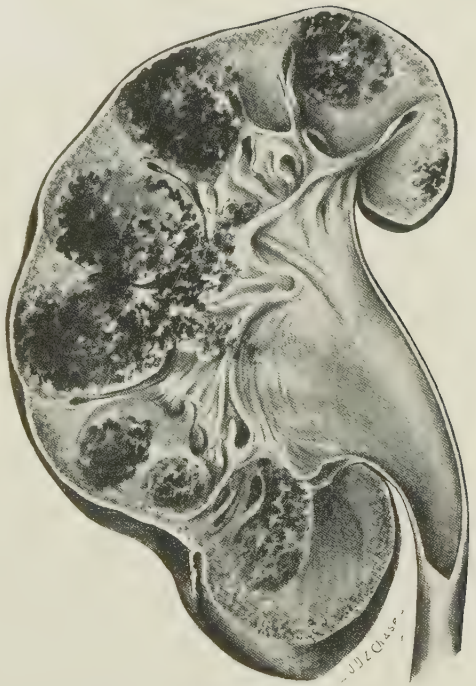
There may be but little variation from the normal. Usually, however, there is more or less augmentation in volume, the increase depending upon the age of the lesion. There may be, as in Case VI., an extensive tumor-formation, the result of a hydro- or pyelonephrosis from an obstructed ureter. On the other hand, as in Case XLVIII., the volume may be greatly lessened, the result of an atrophic process. The kidney shape is usually retained. The surface may be smooth or, as is more common, embossed, the embossments corresponding to the position of the tubercles or distended caverns.

Quite distinct alterations occur in the capsules. The so-called adipose capsule, the perirenal tissue, is, at times, greatly thickened, and may add considerably to the bulk of the tumor. In an instance cited by Tuffier, where tumors existed, the kidney was found atrophied and almost buried in the thickened capsule. This thickening is the result either of a simple adiposis or of a sclero-adiposis. The latter condition is well illustrated in the kidney of my own case.

Perirenal abscess is observed with rather marked frequency, nine times in the cases here presented. These abscesses are due to perforation of the true kidney capsule by pus from points of suppuration in the kidney structure, as the result of which a tuberculous process develops in the perirenal substance, or they may develop as the result of a propagation of the tuberculous virus through the medium of the lymphatics (Albarran). These abscesses vary in size and are usually of slow development. They extend in various directions, either descending into the iliac fossa or ascending in the direction of the diaphragm, sometimes perforating it and giving rise to empyema. They may point externally or perforate into the adjacent viscera. The abscess cavity is irregular and often sacculated. The sacs may or may not communicate. Caseation occurs, as in tuberculous processes elsewhere. The caseous remains adhere to the walls or float in the liquid of the abscess. The liquid may be serous or sero-sanguineous in the early history of the lesion, especially where infection occurs through the lymphatics, but suppuration soon develops, and we have purulent contents of a urinous odor.

The true kidney capsule is usually somewhat sclerosed and thickened, at times extensively. After caseation has advanced it may become detached from the surface and elevated at points. Often it is so adherent to the thickened perirenal adipose tissue that it is impossible to separate it. It is apt, also, to be adherent to the renal substance, detachable with difficulty, the surface being covered with adherent particles of degenerated kidney tissue. Subcapsular abscess occurs occasionally when the true kidney capsule is so resistant from sclerotic changes that the pus from suppurating points in the kidney is unable to perforate it. (Vigneron.) The capsule removed, the surface is seen to consist of abscess cavities, a mass of huge tubercles, or to be studded, here and there, with small tuberculous notches, depending upon the age of the lesion.

PLATE II.



Extensive abscess formation; the two largest abscesses communicating with each other and with the pelvis of the kidney; no involvement of the pelvis.

PLATE III.

Showing extensive thickening of ureter; dilatation and thickening of the pelvis, with tuberculous incrustation of the mucous membrane and tuberculous degeneration of the apices of the pyramids; the eventual condition in those cases in which the infection has been primary in the pelvis or in which it has extended from the lower urinary organs.

The cut surface of the caseous tuberculous kidney presents lesions in accordance with the age of the disease. From the *post-mortem* findings it is oftentimes difficult to tell in what part of the organ the disease has begun. In primary tuberculosis, the infection being through the blood-vessels, in the early stages we find young tuberculous granulations in the cortex and at the bases of the pyramids, especially in the region of the blood-vessels and glomeruli. These tubercles gradually increase in size, infringe more and more upon the kidney substance, become caseated, softening occurs, and we have the formation of cavities resulting. In the earlier stages the cavities are separated by rigid septa, which frequently have the naked-eye appearance of healthy tissue, but which show microscopically either no trace of kidney substance or small portions of corpuscles or of uriniferous tubules smothered up in fibrinous tissue. (Plate II.)

The cysts vary in number and size. There may be as many as ten or twelve in a single kidney. They sooner or later communicate among themselves and with the pelvis, and eventually the septa may be destroyed entirely, and the kidney becomes converted into one huge cyst with more or less thick walls and ragged internal surface due to the remains of the original septa. The internal walls of the smaller caverns are ragged and irregular, of a grayish color, more or less covered with caseous material, and in old cases at times with calcareous concretions.

The contents of these cysts vary. They are sometimes sero-sanguineous, of urinous odor, with a chalky or cheesy deposit. More often they are purulent, either yellowish, whitish, or dirty-gray in color, sometimes blood-tinged, and of a urinous odor. The sediment is chalky or cheesy. It contains particles of degenerated tubercles, remnants of kidney structure. Sometimes, according to Vigneron, small calculi of phosphate or carbonate of lime have been found, and Morris has noted collections of cholesterin. Pus-cells, blood-cells, granular amorphous matter, and tripple phosphates are commonly demonstrable. Koch's bacillus has been shown in the earlier stages of cyst-formation, but after the condition is well advanced only the micro-organisms of suppuration are apparent.

The pelvis of the kidney may, and, sooner or later, usually does participate in the process. Occasionally it constitutes the point of primary focus. In the earlier stages it is healthy. As tubercularization advances and the glandular substance becomes augmented in volume it is not uncommon for the pelvis to be infringed upon and much reduced in size. After communication between the pelvis and the pus-containing caverns is established the pelvic mucous membrane becomes infected. It may be studded with tubercles or greatly thickened. It may be granular and not infrequently is incrusted with a heavy, closely adherent, grayish or grayish-yellow tuberculous membrane. Erosions may exist here and there. Dilatation of the pelvis, either as a result of obstructed ureter or urethra, is common. It is frequently found to contain purulent urine with cheesy and tuberculous deposits. In very advanced cases the communication between the glandular

substance and the pelvis becomes so intimate that the outline of the pelvis is entirely lost. (Plate III.)

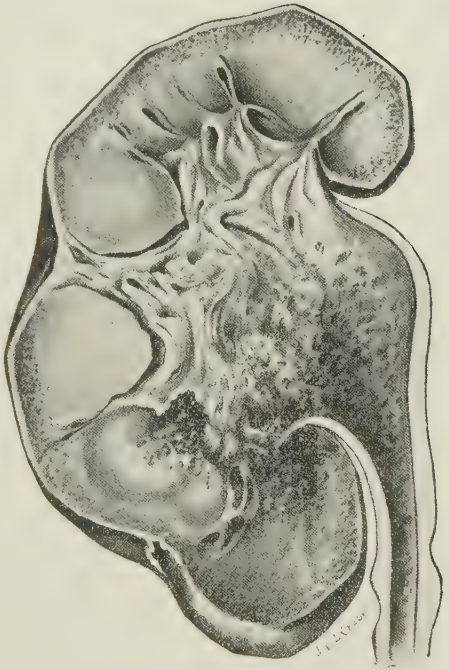
The ureter is sooner or later involved in the tuberculous process and partakes of much the same changes as those found in the pelvis. Its walls are frequently much thickened, its canal obliterated, forming a thick, non-canaliculated fibrous cord. In other instances there are areas of localized thickening resulting in obstruction with extensive dilatation and consequent thinning of the walls in the parts above. Cheesy masses, blood clots, and membranous shreds sometimes destroy the lumen of the canal.

The tuberculous process may be abruptly limited at the opening into the bladder, but usually, where the disease is at all advanced in the ureter, some changes are apparent in the wall of the bladder. These alterations consist most commonly in a slight thickening of the mucous membrane in the surface of the trigone or about the neck of the bladder. Extensive involvement of the mucous membrane is uncommon. In some cases the walls are thickened throughout or the mucous membrane may be studded with minute, superficial tubercles, many or all of which are ulcerated. There may also be extensive incrustration of the mucous membrane.

The second kidney being involved by ascending infection is first affected in the pelvis and calices. Obstruction of its ureter with extensive hydro- or pyonephrosis is very common. The apices of the pyramids are the first part of the glandular substance to be involved. After the disease is well advanced, it may be impossible to tell, from the appearance of the kidney, in just what part of the kidney the infection primarily occurred. The cortex, however, usually remains intact. Where the tuberculous process has not invaded the second kidney, we frequently find it the seat of an amyloid degeneration.

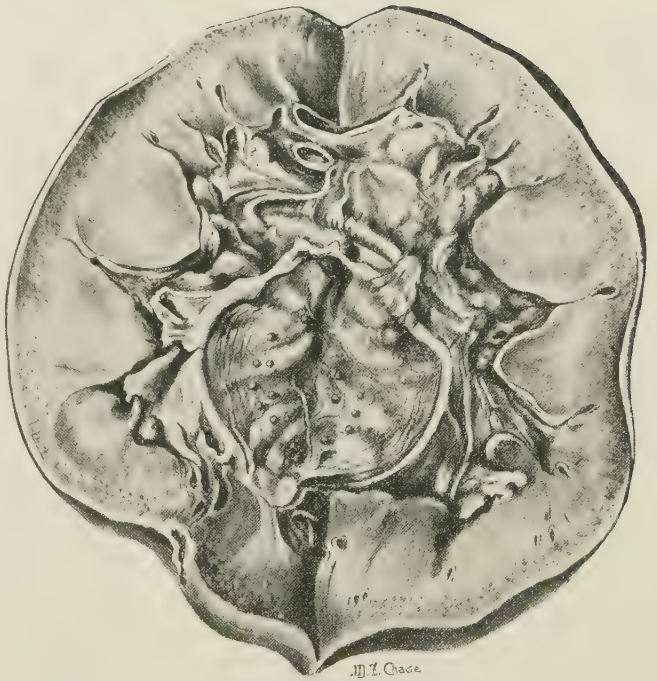
It is most difficult to determine from the pathological appearances the probable starting-point of urinary tuberculosis. If one finds the mucous membrane of the bladder extensively ulcerated and tuberculous, or its walls incrusted with a dense tuberculous membrane and the ureter thickened and tuberculous, its lumen perhaps destroyed, the pelvis dilated and thickened, and the involvement of the glandular substance limited to the apices of one or two pyramids, it is probable that the disease has originated in the lower urinary organs, and that the kidney is secondarily infected. On the other hand, if the conditions presented are similar to those in my own case it is a matter of no difficulty to determine that the condition has had its origin in the kidney. As a matter of fact, and unfortunately, these are not the *post-mortem* lesions that most often confront us. Usually the kidney is so far involved that but little if any normal kidney tissue is left. There may remain, however, a portion of cortex; or, in the upper portion of the kidney, as is not uncommon, a partially infiltrated pyramid. In such cases as these, where we have an accompanying involvement of the bladder and ureter, the determination of the particular form of infection becomes ex-

PLATE IV.



Mixed infection: showing on the surface of the kidney the remains of a tuberculous abscess, which has partially healed by a discharge of its contents into the pelvis. This having resulted in an infection of the lower urinary organs, an eventual reinfection of the kidney has occurred by the ascending process, giving rise to the same condition illustrated in Plate III.

PLATE V.



Case of Drs. D. D. Stewart and A. O. J. Kelly, through whose courtesy I use the illustration: a very remarkable case of primary involvement of the pelvis of the kidney. Tubercle bacilli were discovered in the urine during life and in the post-mortem contents of the bladder and pelvis; most careful examination excluded the existence of tuberculous deposits in other organs.

ceedingly difficult, if not impossible. Where the kidney tissue is entirely destroyed, also, we have no clue to the beginning.

The possibility of a mixed infection does not seem to have been considered. It is reasonable to believe that a limited area of tuberculous involvement of the kidney, of vascular origin, might advance to the stage of softening, the softened material be evacuated into the pelvis and lower urinary organs, the kidney lesion thus becoming checked or cured. The lower urinary organs in the mean time having become infected, we have obstruction of the ureter, the tuberculous virus is elevated to the kidney level, the pelvis becomes dilated and infected, the apices of the pyramids are involved, and we have the pathological picture of an ascending infection or a secondary kidney involvement, when in truth the primary focus has been in the kidney. (Plate IV.)

The fact that Albarran has been the only person who has succeeded in producing ascending tuberculosis experimentally, the great infrequency with which isolated bladder tuberculosis has been observed, and the fact that in almost all cases of combined tuberculosis of the kidney and bladder the kidney lesion seems the more advanced, go to show that the ascending form is infrequent. It would seem, therefore, that, where the post-mortem findings leave the question in doubt, it is safe to decide in favor of a descending infection.

SYMPTOMATOLOGY.

In the early stages the symptoms are so slight as not to attract attention. Rilliet and Barthez say it sometimes passes unnoticed. Rosenstein makes the statement that symptoms occur only when the mucous membrane of the calices and pelvis becomes inflamed, or when the softened centres in the kidney discharge into the pelvis. Szumam believes that a tuberculous deposit in the midst of the kidney tissue, not yet suppurated, usually gives no special symptoms. In my own case there were never any symptoms referable to the kidney, and, as is readily apparent, there has been very extensive destruction of the glandular substance, but no involvement of the pelvis. The first manifestations of the condition are those found in connection with the urinary apparatus. Harrison found incontinence and urinary irritability among the earliest symptoms. He suggests that the condition is more common in children than is generally believed, and advises that every case of nocturnal incontinence be carefully studied with a view to establishing renal tuberculosis. A slight sense of pain in the loins and a little blood in the urine are easily observed.

Pain, varying in character and location, is probably one of the most constant manifestations. It may be of a dull, aching, almost constant character and limited to the lumbar region. Usually it is confined to or more manifest on the side of the diseased kidney. It is frequently paroxysmal, the paroxysms varying in degree of intensity and in duration, and is either limited to the kidney region, or, following the course of the ureter, it shoots downward and extends to the testicles or tip of the penis. These periodic

attacks are sometimes of slow approach, and again come on with great suddenness, closely simulating renal colic from the passage of stone, this simulation doubtless being due to the existence of like conditions, the passing of a clot or tuberculous mass through the ureter. Retching is not uncommon in these paroxysms. The pain is increased by pressure. In one case in the series it was induced only by pressure. Motion and position of the body have a like effect. In several cases the position of scoliosis was assumed in walking in order to relax the muscles and thus overcome the pain of motion. In Case II., lying on the affected side produced discomfort. Pain at the neck of the bladder is very common, and manifests itself chiefly before and during, and sometimes, also, just after micturition. It varies in degree of intensity in proportion to the amount of bladder involvement and the character of the urine. Thick, purulent urine, containing shreds and clots, increases the pain by creating vesical spasm. This pain is so intense at times that it gives rise to screaming and shuddering during urination. Involvement of the bladder and the changes in the urine just specified give rise also to other changes in micturition, the most common being increased frequency and incontinence. In some cases the desire to urinate is almost constant. The quantity of urine may be increased or diminished. In Case XII., reported by Dufour, polyuria existed with polydipsia, and a diagnosis of diabetes was made. Retention sometimes exists, the result of blocking of the urethra by clots or shreds, or from vesical spasm. Difficulty in voiding urine seems quite common in children, and to overcome this, pulling at the foreskin, an attempt, as it were, to milk away the thick, ropy urine, is resorted to.

Hæmaturia occurs at all stages. It may be abundant or slight. It sometimes accompanies the spasmodic pains, and may be induced by exercise, but usually is not associated with either. The character of the urine varies. It frequently is normal. After a long-continued, purulent flow, it may abruptly show no abnormality, the result of blocking of the ureter. The color may be cloudy, smoky, or muddy; the odor fetid. The sediment may be copious, white, yellowish- or pinkish-white, or muddy in color, and is due to the pus, urates, phosphates, clots, and cheesy matter. The reaction is usually acid, sometimes alkaline from ammoniacal decomposition. The specific gravity is slightly subnormal. Albumin in small quantity is common, due to the blood and pus. Tapret, on the other hand, says it is exceptional. Du Pasquier finds it very rare, and from this fact concludes that the concomitant alterations of the epithelium, of the arteries, and of the connective tissue are very rare. The quantity of albumin is increased when parenchymatous inflammation of the second kidney occurs. Under the microscope pus and blood are rather constant. Rosenstein says they are always found even when the urine is clear. Granulo-fatty casts may exist, leucocytes and the remains of degenerated epithelial cells from the kidney and bladder, calcium oxalate, and phosphatic crystals are found. Fagge, Ebstein, and Rosenstein lay special stress upon the diagnostic value of

the presence of connective and elastic tissue fibres, and a granulous, meal-like, brittle mass which appears under the microscope in the form of small nuclei, and is insoluble by heat or any sort of acid. Bacteriological examination of the urine may lead to the discovery of Koch's bacillus.

Tumor was observed in twenty-three of the cases, varying in size from a slight increase above the normal to that of a child's head. It is due either to tuberculous overgrowth of the glandular substance, as in my own case, to dilatation of the kidney from obstruction of the ureter, to an adiposis or fibro-adiposis of the perirenal tissue, or to perinephritic abscess. The kidney form is generally retained, the surface is bossellated, it may be elastic and fluctuating, or hard and resistant, depending upon the cause of the tumor. Tenderness to the touch is common, and there is dulness on percussion over the mass. When dependent upon obstruction of a ureter by clots it varies in size from time to time, and may disappear and remain absent for a period of weeks to recur in the event of reblocking of the ureter. These tumors are deep-seated in the abdomen, and do not move during respiration. When the mass is large the abdominal veins are prominent, and there may be pressure symptoms.

Constitutional symptoms manifest themselves, but usually in the later stages of the disease. They consist in loss of flesh and strength, colliquative sweats, more or less marked anæmia, at times a distinct cachexia, and pyrexia, which may assume a hectic type. This last symptom is especially emphasized by Reginald Harrison as of great diagnostic value in connection with the urinary symptoms. Death results from exhaustion, from profound tuberculous toxæmia (Aviragnet), from perforation of the peritoneum or adjacent viscera by a distended pelvis or perirenal abscess, or from some one of the various complications, such as uræmia, tuberculous meningitis, or general tuberculous infection. The uræmic attacks are due either to the tuberculous condition or to a concomitant parenchymatous change. If dependent upon retention from blocking of the ureters, they are likely to have an intermittent course. Incessant vomiting, diarrhœa, dyspnœa, mild muttering delirium, convulsions, somnolence, and coma have been the usual uræmic manifestations.

DIAGNOSIS.

The early diagnosis is difficult, in some cases well-nigh impossible, but extremely important. The condition is rare in children, frequently without symptoms, and therefore apt to be overlooked. There is only one absolutely positive sign—the discovery of Koch's bacillus in the urine—when other microscopical constituents point to an affection of the kidney. The bacillus is difficult of demonstration. It should be carefully sought for in all suspicious cases, and cultures should be made from the urinary sediment. Von Jaksch advises resort to Koch's method of plate cultivation to obtain the various micro-organisms in an unmixed condition. The

inoculation of animals will resolve doubt as to character of the specific organism obtained.

Philipowicz has discovered isolated specimens of the bacillus in the urine in miliary tuberculosis where there were no tuberculous ulcers in the genito-urinary passages, a fact well worth bearing in mind.

Where early symptoms exist, dull aching, more or less constant pain in the loins, occasional slight hæmaturia, with almost constant microscopic evidences of blood and pus, and increased frequency of micturition with nocturnal incontinence are among the most suggestive.

In the later stages the symptoms are more distinctive; the lumbar pain, the severe incontinence and hæmaturia not influenced by exercise, the purulent urine containing the above-described granular, amorphous masses insoluble in acids in combination with elastic fibres and shreds of connective tissue, and eventually, tumor-formation, and the development of general symptoms make the diagnosis quite possible.

The conditions in childhood which are most apt to be confounded with primary renal tuberculosis are renal and vesical calculus.

From Renal Calculus.—In renal calculus there is usually a family history of gout or gravel. The symptoms are incontinence and urinary irritability increased by exercise, dull, aching pain following exercise, frequent attacks of paroxysmal pain much more agonizing than the colics of tuberculosis, and followed by bloody urine; hæmaturia is more severe and increased by exercise as well as by colics. The health is good between the attacks unless pyelitis develops, and this is always late; tumor formation is rare. The specific gravity of the urine is above the normal, the reaction is acid, the pus sediment from pyelitis separates more clearly from the supernatant urine, the pus is more laudable, and is sharper in microscopic outline. Gravel is observed in the urine, numerous crystals of uric acid or oxalate of calcium are found, casts are less common than in tuberculosis, and bacilli are absent. Bruce-Clark suggests exploratory puncture as a means of removing all doubt.

Stone in the bladder is excluded by examination with the sound.

Sarcoma of the kidney may mislead. This affection is more rapid in development, the tumor is often of enormous dimensions, the surface is smooth and elastic, the kidney-shape may be lost. The urinary symptoms are negative unless there be an occasional hæmaturia. Examination of the tissue obtained by exploratory puncture has been resorted to. In two of the cases a diagnosis of tuberculous tumor of the mesentery was made; the absence of the lumbar pains, of urinary irritability and changes in the urine, the shape of the tumor and its probable mobility should exclude chronic tuberculosis of the kidney.

PROGNOSIS.

Prognosis is, without operative interference, usually fatal. Nephrotomy and nephrectomy have done much to diminish the death-rate. Some-

times cicatrices form. The condition, instead of progressing to caseation, follows another course: a true organization is established, fibrous tissue is formed, and a cure obtained (Fagge and Gaultier). In other cases softening happens, and the contents of the tuberculous pouch, instead of undergoing fatty degeneration and being eliminated, become indurated. The balance of the kidney secretes urine, and the condition gives rise to no symptoms (Gaultier). Newman says, "Should only one organ be affected the kidney may, by a drying up of the contents of the pyonephrosis, become converted into a shrivelled, putty-like mass." The other kidney may continue healthy, and the patient live indefinitely. Roberts thinks tuberculous masses are occasionally evacuated by the urinary channels in the same way that similar masses in the lungs are sometimes disposed of by the bronchial tubes, thus bringing about a cure. Dickinson and Bruce-Clark support this view. The modes of fatal termination have been described. The duration of the disease is usually from six months to two or three years. It is sometimes very chronic, with intervals of fair health followed by exacerbations. Dr. Thomas Smith refers to a case of Mr. Warrington Hayward, which was under observation for eighteen years.

TREATMENT.

The medical treatment of the disease is that of tuberculosis in other organs, and is quite as unsatisfactory in its results.

It is not the purpose of this paper to take up the surgery of primary tuberculosis, but it does seem proper to briefly relate the results obtained in the seventeen cases upon which operations were performed. Nephrotomy was done four times, with two recoveries, one improvement, and one death. Nephrectomy was done nine times, with five recoveries, one improvement (died later from perforation of the duodenum), and three deaths from the effect of the operation. Nephrotomy followed by nephrectomy was resorted to in four cases; two recovered, one died, and one improved. All of these operative cases were very far advanced, and were, therefore, not good cases. Of the two nephrotomies that recovered, one had pyelitis and perinephritic abscess, and the other abscess of the kidney. Of the cases of nephrectomy which recovered, in one the kidney was a loculated sac containing foul-smelling pus, in two others the kidney was enlarged. Perirenal abscess existed in one, and in the fifth the kidney was not described. In the case which died from perforation of the duodenum, a large perinephritic abscess was first opened, and, later, a cystic kidney removed. Marked improvement had occurred in this case. Of the two cases of nephrotomy followed by nephrectomy which recovered, one had perirenal abscess and abscess of the kidney. In the other case the lad's condition was miserable. A perineal section was first resorted to for the relief of a tuberculous cystitis; later, nephrotomy was done to relieve a pyonephrosis. Marked improvement resulted, and finally the kidney was resected. The boy recovered, with the urine clear.

If such results are possible in these far-advanced, suppurating, unpromising cases, it would certainly seem that resection of the kidney at a time when the disease is absolutely localized, before softening has begun,—in the earliest stages, in other words,—offers an almost certain cure. The question, therefore, resolves itself into one of early diagnosis, and lays much of the burden of responsibility at the door of the medical man, for in the majority of instances these cases first come under his notice.

REPORTED CASES.

Reported by Dr. Cooper, *Medical Times and Hospital Gazette*, London, 1880, vol. ii. p. 588.

Case II.—Girl, aged eleven years; illness began, in 1879, with pain in right loin. Lost flesh and strength; urine always turbid when passed; micturition same as in health; no pain over bladder; discomfort on lying on right side; tumor in loin.

On admission to hospital, more or less solid mass in right iliac and lumbar regions; visible fulness to right of and below the umbilicus; no marked swelling; pain on right side in grasping the loins posteriorly; slight pitting of legs on pressure; urine voided three or four times a day, one-third its volume in pus; tumor fluctuates, movable; no symptoms of cystitis; urine acid. A diagnosis of strumous kidney dilated with pus was made. The pus was withdrawn by incision. Quantity of urine and percentage of solids normal; no renal insufficiency; amount of albumin very small; temperature normal in the morning, up in the evening; highest point 102° F. The thoracic organs seemed healthy. Nephrectomy was performed; kidney contained dark-colored, foul-smelling pus,—it was a loculated sac. The ureter was not affected. Recovery.

Barker, *Lancet*, 1885, vol. i. p. 141.

Case III.—Boy, aged nine years. History of three years' illness. *Symptoms:* Pain and difficulty in micturition; pain in right side; hæmaturia; paroxysms of pain gradually increasing in intensity, felt in loin and tip of penis; severe retching during pain; no vomiting; urine not always bloody after attacks; usually becomes so gradually, and at times is almost pure blood; urinates five to six times daily; never increased frequency; always a delicate boy; much bronchitis in infancy. Father asthmatic and catarrhal; other children strumous.

Urine: Bloody, acid; specific gravity, 1025; contains crystals of calcium oxalate and red and white corpuscles. Physical examination shows no tumors. Diagnosis of stone was made, as three years' standing without tumor and bleeding after manipulation seemed to exclude a new growth or tuberculous process. An operation was done. Kidney punctured; nothing found. The rest following this operation relieved him for some months, when hæmaturia recurred; later improved again. A diagnosis of a small tuberculous deposit or ulcer in the ureter or pelvis was made.

J. A. Hobson, *Cincinnati Lancet and Clinic*, October 10, 1885.

Case IV.—Boy, aged thirteen years. First seen September, 1883. Mother had tuberculosis at time of his birth, and died six months later. One aunt tuberculous; nocturnal incontinence since childhood. No pulmonary symptoms; tenderness over left kidney; no tumor palpable; desire to urinate almost constant; intense pain on micturition; exercise increased the pain and tenderness in the left lumbar region and the pain on micturition; renal calculus was suspected.

Urine: First examination, specific gravity 1005, acid; amount in twenty-four

hours not exceeding one pint; albumin; pain on micturition grew more constant; patient more cachectic; urine became purulent; occasional vomiting; slight fever. A later examination of the urine found it purulent; small in amount; specific gravity 1004. Eventually, urine was completely suppressed. Respirations fell to six per minute two days before death. Jactitations, delirium; no convulsions; death. During the last three days there was a discharge of pure pus, without urinous odor, from the bladder.

Necropsy.—Left kidney: Slightly larger than normal; capsule closely adherent; practically a sac occupied by a collection of thick pus; surface lobulated; no vestige of secreting structure, only a layer of cortical substance two lines in thickness; contained a soft, pasty mass resembling the contents of a sebaceous cyst. The walls of the ureter were thickened. *Right kidney:* Greatly enlarged, infiltrated with tubercles in various stages; on and near the convex border were large patches, some an inch in diameter and some softened in the centre; near the pelvis were numerous small abscesses, some of which opened into it, filling it and the ureter with pus; on removing the pus the lining membrane of the pelvis is granular, and this condition extends into the ureter; capsule easily detached. The structure of the kidney is everywhere infiltrated with fine granular matter. *Bladder:* Walls thickened throughout; no deposit of tubercle observed; other abdominal organs normal.

Dr. C. Bohm, *Jahrbücher für Kinderheilkunde*, vol. xix. p. 205.

Case V.—Boy, aged four years; admitted to Children's Hospital September 23, 1882. Always a sickly child. Maternal aunt died of pulmonary phthisis. Child fell down-stairs when one and a half years old, at which time he might have injured the left renal region. The urine has been cloudy for more than a year, and was thought to contain pus. For nearly three weeks, three-fourths of a year ago, the flow of urine had been reduced. The swelling in the left lumbar region had been remarked five weeks before admission. No fever or night-sweats had been observed.

Present condition, September 25, 1882. Unusually developed for his age; has fallen away in flesh; relaxed carriage; anæmic; urine voided in normal manner and quantity; no albumin; no sediments.

In the left lumbar region, between the last rib and the iliac crest, is a diffuse swelling the size of a man's hand. The skin over it is red; it fluctuates and is painful to the touch. The belly is swollen and sensitive. The left thigh is on the hip-joint in moderate flexion and cannot be easily stretched. The lumbar segment of the spine is somewhat scoliotic. Temperature in axilla, 37.9° C.

October 4. Abscess was incised and a thick stream of odorless white pus exuded. Microscopically, it showed pus-cells, granular matter, fat drops, and detritus. The kidneys were felt in the abscess cavity. October 10. Urine gave slight turbidity with nitric acid and boiling. Died October 12.

Autopsy.—Cheesy bronchial glands at tubes of right lung; two small, cheesy glands by the trachea. Right kidney large; capsule easily detached; surface smooth; doughy consistency; yellowish color; cortical and pyramidal substance nearly alike in color. In the region of the left kidney is an irregular, diffused swelling half the size of a child's head. In the mass is a body which corresponds to a somewhat enlarged kidney, and is very adherent to the surrounding tissues. All the tissues around the kidney are greenish in color and easy to tear. Between the lumbar fascia and the skin is a large cavity which is opened into by the operative incision. No bone-disease. The ureter is the thickness of the little finger, and, on cutting, discharges a creamy fluid which resembles the pus from an abscess. The kidney capsule is not detachable.

The cut kidney shows entire absence of renal structure. The pelvis is distinctly

recognizable. The form of the individual pyramids is shown by rigid septa. These surround cavities with irregular walls. These are almost filled with the cream-like pus above described. After this has exuded there remains in the cavities a whitish, dry mass which is cheesy in consistence. In the wall of the pelvis are many grayish-yellow miliary tubercles the size of a pin's head.

The ureter is entirely obstructed in its upper part by a cheesy mass. Its opening into the pelvis admits only a very thin sound. The lower part of the ureter is also filled with a cheesy mass and is much enlarged. Its opening into the bladder is contracted. Four centimetres above the entrance into the bladder, in the walls of the ureter, are found a number of yellowish-white and gray tubercles arranged circularly as in the pelvis of the kidney. The bladder and other genito-urinary organs are free from tubercle. There is a small abscess in the rectum and a few transparent gray tubercles near by. No pathological changes elsewhere.

Dr. F. Ammon, *Schmidt's Jahrbücher*, vol. i. p. 320.

Case VI.—Girl, aged three and a half years; scrofulous constitution; mother died of phthisis; hectic fever, advanced emaciation, cough, catarrh of head, tumor. Admitted to the Dresden Hospital in September, 1829. Emaciation; left abdomen prominent. In the left iliac and lumbar regions is a swelling the size of a fist, deeply located, not movable, painful to touch, kidney-shape; abdominal veins prominent. In walking, the child has the position of scoliosis. Child had fallen eight days before, and complained of pain in the region of the bladder for one day. Passed water when she laughed, sat, or stood.

A diagnosis of general, scrofulous, tuberculous deposit in the left kidney was made. No signs of disease of other organs.

On December 15 she developed violent pains in the tumor, and it was again enlarged. Had fever and some vomiting. Swelling soon subsided. At the end of the following January, fever and general symptoms became aggravated; tumor again increased in size, painless; abdominal veins over tumor much enlarged; urine still normal. Child better and the swelling decreased by the end of February.

Examination, April 10, 1830. Swelling had extended downward so much that the borders could not be defined definitely. It was quite to the iliac crest, and upward it extended beneath the short ribs and pushed them forward. Surface irregular, hard, insensitive to pressure. The tumor condition continued the same until June. The general condition improved. From June 3, grew weaker, tumor increased and became softer. Pulse rapid and small. Urine had a fetid odor, and had a scaly, straw-yellow, mucus-like sediment. Otherwise normal. By the end of June the body was withered. Lower abdomen much inflated, swelling increased constantly, and was harder and more irregular than ever. The right kidney showed an increase in size. Urinary secretion was not disturbed. There was much fever, with colliquative sweats. More pain, alternating improvement and relapses. Tumor increased in size. Child became comatose and died in convulsions.

Necropsy.—Thoracic organs normal. Some serous fluid in abdominal cavity.

Left kidney formed an extraordinarily large tumor, the size of a child's head. It filled nearly the whole left abdominal cavity; was adherent to the ribs and spinal column. The degenerated, ball-shaped kidney showed little trace of its original shape. It fluctuated on palpation and showed tuberculous degeneration of the whole internal substance. The calices were much dilated; the tuberculous mass was yellow and much softened. No blood-vessels or hemorrhages apparent. The left ureter was irregular, walls thick, here and there single tubercles surrounded by a cellular tegument; its canal was obliterated.

The tuberculous metamorphosis extended from the left to the right kidney, the region of the vessels being surrounded by small tubercles. No other organ tuberculous.

Reported by Vernois and quoted by Rayer in his "*Maladies des Reins*," vol. iii. p. 672.

Case VII.—Boy, aged twelve years, brown hair and eyes, admitted to Children's Hospital July 6, 1836, with obstinate diarrhœa, with intense abdominal pain, and excessive tenderness on pressure. Much emaciated for some time past. Diagnosis of tuberculous peritonitis with tuberculous ulceration in the intestine was made. No signs of tuberculosis in the chest. Urination easy and natural. Urine not examined. July 21, developed right-sided pneumonia, later left, and died on the 29th.

Autopsy.—Lungs: Red softening of two-thirds of posterior and inferior parts of both lungs. No tubercle in lungs or bronchial glands. Tuberculous peritonitis. Mesenteric glands large and tuberculous.

Intestine: Mucous membrane covered with ulceration two feet above and below the cæcum with tuberculous matter at their bases. *Left kidney* with urethra and bladder removed together. The kidney was very voluminous. Vertical incision made, and grayish thick fluid escaped from its upper part which filled a cavity communicating with the pelvis. The organ was overrun with tubercles. The surface showed mixed anæmia and hyperæmia; it was the shape and size of an adult kidney; weighed four ounces after the incision. The external membranes detached, a certain amount of tuberculous matter remained adherent to it. The anterior surface of the kidney was strewn with white spots, some protruding, others not; almost all were round and the size of a millet-seed. Most were solid, a few were surrounded by a small areola exactly like the purulent points. The others, especially those in the anæmic points, did not have any areola. In the posterior surface of the kidney we could also see white protruding and solid points, much injected, especially in half of their superior portion, and towards their convex borders. A magnifying glass showed the redness due to a very fine pigmentation and very loose arborization. In the inferior part of the kidney were three tubercles more voluminous and which corresponded to a true tuberculous cavern and had three depressed or destroyed cones. The cortical substance, which was mottled in appearance, by anæmia and hyperæmia, contained also a large number of tuberculous granulations. Their centres were softer than the external portion, but they could not be enucleated and separated from the kidney substance without being torn. The cortical substance near the convex border of the kidney was very much tumefied and slightly softened in several places. In the anæmic centres it was much more consistent. The elevations of the cones were almost all depressed or destroyed. The calices, which were incrusted with tuberculous matter, were dilated. Their cavities and that of the pelvis were entirely unrecognizable. They showed a yellowish-white, irregular coloration, and had the appearance of a tuberculous cavern. The ureter walls were thickened and its inner surface was incrusted with tuberculous matter. The renal vein was healthy. *Right kidney:* No alterations and its ureter not dilated. The mucous membrane of the bladder showed a large number of circular, ecchymosed, and small blackish lines. Towards the orifice of the left ureter were slight traces of tubercle. Mucous membrane was much thickened.

R. Clement Lucas, *Transactions of the London Pathological Society*, vol. xxvi. p. 129.

Case VIII.—Delicate girl, aged seven years, looking much younger. First observed November 16, 1873. Fair complexion. Illness began with an attack of pneumonia in February, 1874. Following it there was debility and loss of appetite, fever, thirst, hot skin, and flushing of face at night; constipation. Early in June she developed a diarrhœa, which continued until death, the stools being at first dark, but later, clay-colored and offensive. Pain in the right side of the abdomen with tender-

ness on pressure. Early in August had great pain and tenderness in the abdomen with increased fulness and abnormal firmness to the right and below the umbilicus.

Two weeks later a distinctly circumscribed tumor was discovered which could be traced upward into the right hypochondrium and back towards the loins. Urine normal. Abdominal tenderness and diarrhœa, more or less profuse, until death. Pain in the head, left-sided hemiplegia, incessant vomiting, frequent convulsions, coma, and death.

Necropsy.—Kidney, six inches long, eleven inches in transverse circumference, capsule thick, and somewhat adherent, small portions of kidney substance adhering. Interior of organ hollowed out into two large cysts, both of which communicate with the pelvis of the kidney; the larger one, which occupied the lower part of the kidney, was of the size of a large orange; wall one-quarter of an inch thick, and composed of opaque, white material lined with soft granular matter. From appearance the cavity was formed originally by dilated calices. There were four secondary pouches within the large one. The upper cyst was smaller; at the extreme upper end of the kidney was a small remnant of normal kidney structure. The interior of the cyst was ragged and granular and contained a murky yellow fluid of urinous odor, from which a copious deposit subsided after standing in a vessel. It contained pus-cells with granular amorphous matter and triple phosphates. Around the opening of the ureter, which is not dilated, the cavity in the lower end of the kidney is continuous with the pelvis of the upper end, the change in the character of their respective lining membranes taking place by a definite festooned border.

Microscopical Examination: At the upper, most normal-looking portion, the Malpighian tufts are shrinking and some are completely destroyed. Their capsules are thickened by a fibrillated material. Most of the tubes have lost their epithelium, and what remains has its cells rounded and granular and filling the whole calibre of the tube. The stroma between the tubes is most thickened by an indefinite material presenting a slight fibrillation with some granules interspersed through it. There is nowhere any definite cell-growth. The kidney structure lessens as the lower end is approached and is finally lost, there remaining only a granulated and fibrillary substance; in this are embedded numerous small masses of ill-formed, round, and oval cells, which appear to start from the blood-vessels, that have themselves richly nucleated walls. These masses are most marked in the middle of the organ, where there is a broad septum, one inch thick, between the cavities.

Magnan, *Gazette Médicale*, 1867.

Case IX.—Male, aged thirteen years. Tuberculous abscess of the right kidney with caseous transformation of pelvis, ureter, and bladder. No pain in kidneys. No change in micturition. Urine is albuminous. Anasarca with swelling of the face and œdema of legs. Sibilant and sonorous râles in both lungs. Skin hot, fever intense. Patient died eight days after coming under observation, showing, just before death, violent pain in the hypogastric region which was increased by pressure.

Necropsy.—Miliary granulations at apices of both lungs. Miliary granulations in left kidney. Infiltration of the interstitial structure of the pyramid. A few small, yellowish nuclei in the thickened cortical substance of the hypertrophied left kidney. *Right kidney:* Hypertrophied, bossellated. Perirenal cellular tissue infiltrated with pus in its posterior portion. The ureter is voluminous and thickened. The bladder is normal in size, with thickened wall, and contains two hundred grammes of a suspicious-looking liquid which holds in suspension a few cheesy clots. The shredded pyramids, which are partly destroyed, are located in the midst of a purulent liquid. Some of the pyramids have disappeared, and in their place we find distended caverns, which are full of pus and caseous matter.

Barrier, *Maladies des Enfants*, 1861.

Case X.—Girl, aged twelve years; on the right side, somewhat above the umbilicus, is a bossellated, hard tumor, size of a hen's egg. It seemed to be located in the mesentery. Died from tuberculosis of the abdominal organs.

Necropsy.—Granulations in the meninges, tubercles in all grades in the intestinal tubes, peritoneum, and spleen, besides tuberculous perforation of the vermiform appendix. The mesenteric glands and the whole urinary apparatus are overrun by tubercles. In the former organs the disease was only slightly advanced. The kidneys, urethra, and bladder were extensively disorganized. The tumor described was due to the increased volume of the right kidney. Both kidney substances were entirely converted into tuberculous matter. The pyramids were entirely composed of tuberculous detritus, and the calices were destroyed. The pelvis and the ureter were entirely infiltrated with tuberculous matter, which seemed to take the place of their walls. In the left kidney the disease was less advanced. The trigone of the bladder and the mouth of the urethra were lined with tuberculous coatings.

Garnier, *Bulletin de la Société d'Anatomie*, June, 1859. Quoted by Gaultier, *Thèse de Paris*, 1882.

Case XI.—Girl, aged twenty-six months, died at St. Eugénie Hospital within fifteen days of admission, with softening and ulceration of the mucous membrane of the large intestine.

Necropsy.—A dozen semi-transparent, gray granulations upon the apex of the right lung. Left kidney is only injected, larger than normal. The right is almost tripled in volume, bossellated on its surface, and when cut lets two or three spoonfuls of a milky, puriform fluid escape, which contains a few nuclei of tuberculous appearance. It is hollowed internally with large, irregular, sinuous vacuoles, the walls of which are covered with a false, gray membrane which is thickened and adherent to the renal tissue. Around the vacuoles, which mostly communicate among themselves and with the calices and pelvis, we find small tuberculous nuclei of various sizes, from that of a pin's head to that of a pea, of yellowish coloration, and the consistency of the crude tubercle. These deposits overrun the ureter. The ureter is the shape of an indurated cord the size of the little finger. Its vesical orifice will admit a goose-quill. On cutting the walls of the ureter we find, supplanting the destroyed mucous membrane, a gray, granular, and very adherent tuberculous coating. The vesical mucous membrane is healthy, except in one radius of a centimetre around the orifice of the described ureter.

Dufour, *Thèse de Paris*, 1854.

Case XII.—Boy, aged seven years, had the aspect of a patient with pulmonary phthisis during the evolution of the affection. Had polyuria and polydipsia, which led to a diagnosis of diabetes. These symptoms improved, incontinence developed; eventually, patient died.

Necropsy.—Tubercles of bronchial glands; general infiltration of both lungs; milky blotches on the anterior surfaces of the auricles and ventricles of the heart; a few tuberculous gray granulations in the spleen; right kidney healthy; left kidney strewn with tubercles which were either infiltrated or in the shape of caverns; the mucous membrane of the pelvis and of the calices is also covered with tubercles; it contained urine with a few whitish clots. The dilated ureter contains tubercles located in the thickness of the mucous membrane in such large numbers that the ureter has taken the shape of a tubulous duct with solid and distended walls. The vesical mucous membrane is tuberculous and thickened.

Dufour, *Thèse de Paris*, 1854.

Case XIII.—Girl, aged fourteen years; incontinence of urine with general cachexia; died of varioloid; tuberculous alterations in lungs, intestines, and liver. The left kidney, ureter, and the bladder showed the same changes as in the preceding case.

Pasquet, *Bulletin de la Société d'Anatomie*, June, 1838. Quoted by Gaultier, *Thèse de Paris*, 1882.

Case XIV.—Boy, aged twelve years; symptoms of advanced phthisis; no apparent symptoms of the urinary apparatus; death. There was apparent through the abdominal walls to the right and somewhat above the umbilicus a hard, round tumor the size of a small egg, which was taken for a tuberculous tumor of the mesentery.

Necropsy.—Tuberculosis of the brain, meninges, lungs, and intestines, but caseous degeneration was nowhere so far advanced as in the urinary apparatus. The tumor observed in life was formed by the inferior surface of the right kidney, which was bent forward. All the cones of the tubules of this kidney, with the exception of one portion of one, were entirely converted into tuberculous matter with preservation of the normal form, especially at the base of the cones where the tuberculous matter was firm. Towards the calices it was softened and diffluent in some points. Part of the pyramids and all of the membrane of the calices and pelvis were destroyed. The pelvis contained urine in which floated flakes of tuberculous matter. The alteration was less advanced in the cortical substance of this same kidney. In the left kidney two cones only were entirely converted into tuberculous matter, and the cortical substance was but little affected.

Bouchut, "Maladies des Nouveau-nés," eighth edition, p. 698.

Case XV.—Boy, between five and six years old, under the care of Lannelongue, with indefinite urinary symptoms. Urine very cloudy; intolerable pain on voiding urine. Calculus was suggested. Two soundings resulted negatively. Infant had the symptoms of a purulent cystitis, and a characteristic nephritis, as manifested by the coma and somnolence, alternating with cerebral excitement. Some time after admission rectal examination revealed something the size of an adult prostate on a level with the neck of the bladder. It was soft and almost liquid. Pressure on the anterior wall of the rectum caused pus to exude from the urethral canal, which fact led to the suspicion of a tuberculous affection. Examination of the lungs was negative. Patient died.

Necropsy.—In the final portion of the urethral canal is found a quite considerable cavity, irregularly covered by a yellow detritus resembling tuberculous products. The kidneys are absolutely infiltrated with a caseous material. At the base of the bladder close to a ureter there existed a small body of the volume of a small pea, which proved to be a lymphatic gland. There were six in all at the base of the bladder.

Morrant-Baker, *Transactions of the International Medical Congress*, 1891, vol. ii. p. 262.

Case XVI.—Girl, aged seven years. First observed October 8, 1880. Had always been delicate. No serious previous illness. Eighteen months before admission to Evelina Hospital, London, she passed a large quantity of blood, partly coagulated, in the urine. One year later had a second less severe attack of hæmaturia. No blood passed since. At the time of the second hemorrhage the urine became puru-

lent, and has remained so. Has been languid, and complained of pain in the chest, with much sweating at night and loss of flesh since two months before the second hemorrhage.

Examination on admission: A rounded swelling, indefinite in outline, found in the region of right kidney, dull on percussion, not very tender, varying in size from time to time. Urine pale; contained much pus, and at times blood, passed frequently in small quantities. Hectic fever very marked. Temperature, 104° F. at night; 97° F. in the morning. Six weeks after admission pus was doubled in quantity, and at this time a half-pint of blood-red urine was passed. Appetite failed. Hectic fever grew more marked.

On December 7, 1880, nephrotomy was done. Improved for a time; grew worse later. Amount of pus increased. February 22, 1881, nephrectomy was performed. *Kidney:* scrofulous, riddled with cavities of various size, lined by thick, whitish, pus-secreting membrane. No healthy structure anywhere, and no stone discovered. Microscopically, the only remnants of healthy structure visible were a few Malpighian corpuscles, and these seem to have undergone fibroid degeneration. The destruction of normal texture seems to be due to extensive cellular infiltration of the whole intertubular connective tissue, which has encroached upon and destroyed the intervening structures. Infiltration is most marked at the surface of the pus-secreting cavities. Many of the blood-vessels are thickened. Marked improvement followed the operation. July 15, 1881, child is about, playing out of doors. Has gained in flesh, color, and strength; eats and sleeps well. Temperature, 98° to 99° F. *Urine:* Quantity of pus, half-ounce in twenty-four hours; getting less. Occasionally a little blood is voided, and usually accompanied by some pain in region of bladder.

Baginsky, *Berliner klinische Wochenschrift*, 1892, p. 516.

Case XVII.—Child, aged three years. Had osseous and joint tuberculosis; acquired measles. In the convalescence intense albuminuria developed. Pus-cells, fatty and lymphoid tube-casts, and tubercle bacilli in large numbers were found in the urinary sediment. There was a tumor on the left side in the lower posterior region from the edge of the ribs, with dulness over this area. Nephrectomy was done. The kidney contained a cheesy focus the size of a walnut. The capsule and its annexes were intact. The child lived for but a short time. At the autopsy the right kidney was found to be non-tuberculous and the seat of a parenchymatous inflammation.

Charcot and Bouchard, *Traité de Médecine*, Paris, 1893.

Case XVIII.—Child; died from tuberculosis. One of the kidneys was entirely transformed into caseous masses; the other was normal, showing neither granulation nor ulceration. The spleen and lungs were overrun with tubercles; the renal lesion seemed the oldest.

Max Schede, *Nierenexstirpationen*, Hamburg, 1889.

Case XIX.—Child, aged three years. Pale, abdomen very large, abdominal veins prominent. A tumor the size of the head of a fœtus in the abdomen in right lumbar region. It is elastic and fluctuating. A yellowish-white liquid containing numerous white globules exuded after an exploratory puncture. The urine is clear and does not contain anything abnormal.

The incision for nephrectomy was made and the cystic pouch discharged eight hundred grammes of liquid like that just described. The finger introduced into the kidney finds in it a very regular pouch in which no trace of kidney substance can be felt. Drainage was accomplished. The result was excellent, notwithstanding the

fact that recovery was delayed by the appearance of a scarlatiniform eruption. Complete excision was accomplished later.

The ureter was slightly dilated in the region of the bladder. Upon the superior and inferior extremities of the cyst are insignificant remnants of renal parenchyma, with reddish-yellow concretions in the urinary canaliculi.

The child died on the 10th of May with whitish deposits on the vocal cords, following a generalized eczema with an intermittent fever, excoriations upon the nose, an aphthous eruption in the mouth, on the tongue, the gums cracked and bleeding, pemphigus upon the hands and feet.

Autopsy.—Lungs: Right broncho-pneumonia; right bronchial glands caseous; spleen showed miliary tubercles; peritoneum showed very numerous miliary granulations. Sections of the right kidney showed many tubercle bacilli. Nothing in the left kidney.

Reginald Harrison, "Surgical Diseases of the Urinary Organs," 4th ed., 1893.

Case XX.—A boy, aged four years. Suspected stone somewhere in the urinary organs. Had many symptoms of this complaint. No calculus had been discovered after several soundings. Strumous family history. Child was singularly bright and intelligent. Twelve months prior to admission he began to wet his bed at night and to suffer from urinary irritability in the daytime. Occasionally, small quantities of blood had been discovered in the urine by microscopic examination. The urine was invariably acid and opaque. Within two months prior to his coming under observation the urine had been charged with mucus and pus, the expulsion of which from his bladder caused great spasm and suffering. To aid micturition and to mitigate the pain, he acquired the habit, which at last became constant, of pulling at his penis. He seemed, as it were, to milk away the urine and what it contained from his bladder.

It was in this condition that the child came under observation. The urine occasionally contained a substance resembling "the white of an egg half-boiled." He was again sounded, under ether, with a negative result. There was an evening rise of temperature with a hectic tendency. A median cystotomy for drainage was performed without benefit. The spasm and vesical tenesmus continued unabated. The child died in a month from the first observation.

Post-mortem.—Bladder and urethra normal. Ureters dilated. The kidneys cystic and tuberculous. Some of the cysts communicated with the pelvis and contained thick, gummy-looking mucus similar to that observed, in a more diluted form, in the urine. The cyst walls seemed to be engaged in secreting this matter. The dilated ureters, the bladder-spasm, and irritability were accounted for in the difficulty experienced in carrying away this viscid matter.

Reginald Harrison, *Ibid.*

Case XXI.—Boy, aged eleven years. Admitted to the Royal Infirmary, June 19, 1882. About eight weeks previous he passed some pus after micturition. This was repeated occasionally for twelve days. This was followed by the discharge of minute clots of blood at intervals after micturition. On admission the patient micturates frequently with pain referred to head of penis and neck of bladder. A fair, delicate-looking boy. Urine normal in appearance. Specific gravity, 1010, acid; contained mucus and a trace of albumin. June 20, 1882, sounded for stone under ether; nothing detected. By Volkmann's bimanual method of examination of the bladder a nodule was distinctly felt at the fundus. Evening temperature, 102° F., falling in the morning to 97° F. This evening rise continued. The patient was delirious during the night of the 24th, passed into a state of semi-consciousness on

the 26th, and developed strabismus and other symptoms of tuberculous meningitis. *Urine examination on the 27th:* Specific gravity, 1020; albumin one-sixth by bulk. Tubercle bacilli found. Died on the 30th.

Autopsy.—Lungs contained recent miliary tubercles. Liver also contained miliary tubercles, normal in size. Right kidney healthy; its ureter dilated. Left kidney enlarged. On section pelvis and calices dilated and contained a yellow, exudative membrane. This yellow, almost puriform, membrane extended along the whole length of the dilated left ureter to the bladder. There were tubercles in the substance of the kidney, and some of the pyramids were partly absorbed. The bladder mucous membrane was covered with a multitude of minute superficial ulcerations of a tuberculous kind. The mucous membrane of the trigone was roughened, and at the fundus a caseous tuberculous nodule was found. Brain convolutions flattened. Lymph at base. Ventricles very much dilated. Recent miliary tubercles were found in both Sylvian fissures.

Dr. Coats, *Catalogue of the Western Infirmary Museum.* Quoted by Newman in "Lectures on Diseases of Kidney."

Case XXII.—Boy, aged nine years. A general advanced tuberculosis of the kidney and ureter on the right side, somewhat advanced hydronephrosis with limited tuberculous disease of the kidney, along with dilatation and slight tuberculosis of the ureter on the left side.

The right kidney is enlarged, and consists of a series of cavities with ragged, irregular internal surface and caseous walls. The right ureter is greatly thickened, and lined with irregular caseous material. The mucous membrane of the bladder presents almost continuous superficial ulcerations. The terminal part of the left ureter is greatly thickened and hard; above, it is much dilated and generally thin-walled, with only here and there a localized thickening. The outline of the left kidney is greater than that of the right. Internally, the pelvis and calices are dilated. Their internal surface in the upper two-thirds is smooth; in the lower one-third irregular, sometimes with shaggy projections and a hard caseous lining of some thickness. There is considerable thickness of kidney tissue between the distended calices and the external surface, and in this are seen a number of small abscesses.

Coats believes the primary lesion to have been a local chronic tuberculosis of the right kidney, from which extension down the ureter to the bladder occurred; then through the bladder to the orifice of the left ureter, there creating obstruction with succeeding dilatation of left ureter and kidney.

Bardenheuer's *Mitteilungen*, Fünftes Heft, 1890, p. 23.

Reported as a case of primary renal tuberculosis.

Case XXIII.—Boy, aged eleven years. Painful swelling of right leg following a fall; three weeks later swelling observed in mid-axillary line, left side, under arch of ribs. Urine clear; no difficulty in voidance; no fever observed; parents healthy. *Status præsens:* Lungs intact; swelling in region of left kidney, which has an elastic touch and which has remained in its original form; operated upon June 7, 1882; complete, left-sided, lumbar extirpation; urine after operation clear, and always free from albumin; child discharged in better health and strength; was living eight years later.

Barthez and Rilliet, "Maladies des Reins," 3d ed., 1891, vol. iii. p. 1280.

Case XXIV.—Boy, aged thirteen years. Left kidney small; surface embossed; form, irregularly spheroidal. It was transformed into a dozen cysts, some of which

were filled with a liquid of urinous odor, the others with tuberculous matter in various degrees of softening. One of these, which was more voluminous than all the others, formed more than one-half the kidney. Nowhere could cortical or tubular substance be found. Some of the cavities were in direct communication; others were closed. The ureter was obliterated, and reduced to a solid, fibrinous, non-canaliculated cord.

Vidal, *Bulletin de la Société d'Anatomie*, 1854. Quoted by Gaultier, *Thèse de Paris*, 1882.

Case XXV.—Girl, aged three years. Both kidneys, pelvis, ureters, and the bladder tuberculous; urethra healthy.

Rayer. Quoted by Gaultier, *Thèse de Paris*, 1882.

Case XXVI.—Girl, aged ten years. Left kidney, calices, and pelvis tuberculous; also ureters and bladder, lungs, liver, and glands.

Gaultier, *Thèse de Paris*, 1882. Case communicated to him by Vaulthier.

Case XXVII.—Boy, aged eight years. No previous illness; sick three months; cough and pain in abdomen. Later, vomiting, cerebral in type; headache, sweats, somnolence, opisthotonos; Cheyne-Stokes breathing; a few râles in the lungs; strabismus, meningitic furrow. Temperature, 38.5° to 39° C. Death.

Necropsy.—Tuberculous meningitis; a few tubercles in the lungs and intestines. *Kidneys:* Right, bossellated, enlarged; surface presents tubercles; on section, about ten cavities, filled with yellowish-white liquid, were demonstrated. The corresponding ureter was infiltrated with caseous matter, which ends at the vesical mucous membrane. Left, contains a large tuberculous focus; the ureter is normal; the trigone and neck of bladder are ulcerated.

N. Baumel, *Montpellier Médical*, 1892, i. 643.

Case XXVIII.—Boy, aged five years. Father tuberculous; had rickets and Pott's disease. Death was brought about by grippal broncho-pneumonia.

Necropsy.—In addition to the broncho-pneumonia, which was not tuberculous, tuberculosis of the kidneys (unsuspected during life) was found; also the lesions of Pott's disease.

Dr. Thomas Smith, *St. Bartholomew's Hospital Reports*, 1882, vol. viii. p. 95.

Case XXIX.—Boy, aged four and a half years, admitted to the Children's Hospital, London, February 8, 1868, under Dr. West. Workhouse orphan, farmed out to nurse two months previous to admission, began to pass blood with the urine; on admission had prolapsus ani and severe urinary irritation, passing his water frequently, screaming and shuddering before urination, and being somewhat relieved after. Did not pull his penis; the urine contained pus and red blood; sounded for stone with negative result; was well nourished, though a delicate-looking child, silken hair and large eyes. February 14. Examined under chloroform. A round, firm swelling felt just below the right kidney, size of a large filbert, and thought to be a renal calculus. Bleeding continued with urinary irritation. February 17. Placed his hand to his back and complained of pain which, by degrees, became constant; no severe renal colic. Swelling palpable, painless to pressure, no blood in urine. March 2. Bleeding returned; pain on micturition continued and increased

in frequency. March 13. Small tumor felt either in or below the left kidney; began to pull the foreskin and glans penis, as do cases of stone; pain had increased in severity; was attacked with vomiting, developed convulsions, and died April 2, two months after admission.

Necropsy.—Kidneys (right): The mucous membrane of the pelvis and calices was smeared over with tuberculous matter, and was here and there eroded. The glandular texture was in parts invaded by ulceration extending from the cavity of the pelvis. There was a cyst in one part of the kidney containing flaky pus. Here and there in the cortical substance were circumscribed deposits of softening tubercle. The left kidney was in a much less advanced stage of the same disease. In the glandular substance there were a few scattered yellow deposits. The mesenteric glands were enlarged and hard. The liver, spleen, heart, lungs, and brain were normal. *The ureters:* The right was much thickened and shortened; its upper end was much enlarged by a deposit of tuberculous matter in its walls, forming, as was believed, the swelling felt during life. The canal was of normal dimension. The left ureter was greatly dilated, and its walls thinned. Its coats seemed healthy. The dilatation seemed due to the obstruction at its vesical orifice, caused by the condition of the bladder mucous membrane there. *Bladder:* Mucous membrane highly vascular and rough about the orifice of the left ureter. The membrane was villous and blood-stained. There was no deposit visible to the naked eye upon or beneath the mucous membrane.

Dr. Thomas Smith, *St. Bartholomew's Hospital Reports*, 1882, vol. viii. p. 95.

Case XXX.—Boy, aged fourteen years, under the care of Mr. Warrington Hayward, in St. George's Hospital in March, 1872. Good family history. General health fair, pallid. Occasional hæmaturia for ten months past. Urine thick and voided more frequently than normal. Occasional pain in the bladder for some time past, worse during past three months, occurs both before and after micturition. Never passed any gravel. No lung symptoms. Urine contained a large quantity of pus and granular matter and broken-up epithelium, no blood; it was alkaline and very offensive. Sounded for stone with negative result. March 15. Passed several small clots of blood. During April the hæmaturia was nearly constant, the pain rather less. In May the hæmaturia increased. In June there was very much less blood, but still much pus and granular matter in the urine. The pain decidedly better. Was discharged in July. No further history.

Dr. J. Howship, "Treatise on the Urine," London, 1823, p. 26.

Case XXXI.—The author refers to case of scrofulous disease of the kidney in boy, without giving any history.

Dr. Cless, of Stuttgart, *Rose's und Wunderlich's Archiv*, vol. iii. p. 4.

Case XXXII.—Refers to the case of a boy showing the highest degree of tuberculosis of the kidney. He passed a great deal of albumin, but there was no evidence of Bright's disease of the kidney.

R. Atwood Beaver, *Lancet*, 1889, vol. ii. p. 1313.

Case XXXIII.—Boy, aged three years, presented at the Out-Patient Department of the Lancaster County Asylum. Unable to pass urine. He appeared to suffer pain in the lower part of the abdomen. Examined for stone in bladder with negative result. Three ounces of normal urine were withdrawn. Two days later

child was returned comatose, with contracted pupils and in a dying condition. Bladder was distended, and ten ounces of urine containing blood were withdrawn.

Necropsy.—Cortex and medulla of upper third of right kidney were found to be infiltrated with miliary tubercles, some of which were becoming caseous. No tuberculous matter was found elsewhere in the body after careful search. Bladder was quite healthy. No stone.

Dr. Thomas Smith, *St. Bartholomew's Hospital Reports*, 1882, vol. viii. p. 95.

Case XXXIV.—Simply refers to the case of a boy, under the care of Mr. Wormald, who was the subject of primary tuberculosis of the kidney.

A. E. Baker, *Lancet*, March, 1888, p. 466.

Case XXXV.—Girl, aged seven years, with tuberculous pyelitis and sacculation, with fetid purulent accumulation; right renal tumor, perinephritic abscess, pyuria, pulmonary tuberculosis, nephrectomy. Recovery.

Under John Duncan. Quoted by Newman, "Surgical Diseases of the Kidney," London, 1888, p. 339.

Case XXXVI.—Boy, aged three years, tuberculous abscess of the kidney, hip-joint disease, nephrotomy. Recovery.

Bardenheuer. Quoted by Newman, *Ibid.*

Case XXXVII.—Boy, aged three months, nephrectomy and perinephritic abscess, with tuberculous left kidney.

By Golding-Bird. Quoted by Newman, *Ibid.*

Case XXXVIII.—Boy, aged one and a quarter years, strumous disease of kidney, nephrectomy, and recovery.

Railton, *Reports of the Manchester Pathological Society*, 1891.

Case XXXIX.—Boy, aged two years and nine months; tumor in left side of abdomen, extending from ribs to iliac crest, and reaching as far forward as one finger's breadth in front of the vertical line of the anterior superior spine of the ilium. Did not move with respiration; dull on percussion. Some slight dulness over apices of both lungs. Child died of tuberculous meningitis. Urine not abnormal.

Necropsy.—Left kidney four to five times its normal size, almost completely transformed into a caseous mass; pelvis and calices were dilated, and contained purulent fluid. Ureter completely closed. Apices of both lungs showed infiltration, caseation, calcification, while that of the right showed, in addition, a small cavity. *Brain:* Considerable quantity of fluid in the ventricles, exuded lymph in the spaces between the optic chiasm and pons and along the Sylvian fissures. Tubercles on the lower surface of the lateral lobes of the cerebellum and in the longitudinal fissure. Railton believed the kidney to be the primary focus of disease.

Dr. H. Bence Jones, *Medical Times and Gazette*, London, 1854, vol. i. p. 615.

Case XL.—Girl, aged eleven years (supposed scrofulous disease; no autopsy), first observed March, 1850. Pale and delicate. Has had pain in loins four years.

In the summer of 1849 urine contained albumin and sometimes blood. The blood did not appear after exercise. She could jump from any height without causing the appearance of blood. *Urine:* Specific gravity 1010; contained globules and oxalate of lime crystals; acid. Was sounded for stone with negative result, but the examination induced great pain. June 4. Urine contains pus globules, a trace of albumin; no oxalate of lime. February, 1851. Passing much blood. November, 1852. Urine contains blood and pus globules and oxalate of lime. May, 1854. More blood in urine; lungs normal. Thin, delicate-looking, but able to take much exercise without much fatigue. Not anæmic.

Kulakowski, *Przeglad lekarski*, N. 28 Paln, abstracted from *Schmidt's Jahrbücher*, 1881, vol. ii. p. 613.[1]

Case XLI.—Boy, aged nine years. *Symptoms:* great distention and dull percussion in left kidney region. Pressure in the left hypochondrium is painful. Pain in the course of the ureter towards the kidney. There is a swelling of the left half of the scrotum, and upon its under surface is found a small superficial ulcer. Epididymis is hard and painful. Incontinence of urine. Great pain on introduction of the catheter. No apparent calculus. Alkaline reaction of urine and large amount of albumin. Phthisical habit was manifest. There existed a right-sided pulmonary infiltration. Death ensued from tuberculous meningitis.

Necropsy.—Tuberculosis of the urethra, tuberculous ulceration of the bladder, tuberculosis of epididymis, tuberculous basal meningitis, tuberculous infiltration of the apex of the right lung with an accompanying fibrinous pleurisy. Tumor in an extensively diseased spleen.

It was the opinion of the author that the tuberculous process had its primary origin in the kidney in consequence of a preceding nephritis in a subject with hereditary tuberculous tendency.

Baumel, *Virchow und Hirsch's Jahresbericht*, 1892, vol. ii. p. 643. (Abstract.)

Case XLII.—Boy, aged fourteen years, in whom he suspected tubercle of the kidney. Phthisical family history; anæmic and emaciated. Has irregular slight elevations of temperature. Lungs are quite free. Never has spontaneous pain, but pain in lumbar region upon pressure. Urine shows strong deposit of albumin from day to day. Microscope shows red and white blood-corpuscles. Tubercle bacilli never established.

Steiner, in his "Compendium der Kinderkrankheiten," p. 275.

Cases XLIII. and XLIV.—Refers to having seen two cases of primary tuberculosis of the kidney in children, in both of whom there were scars of old scrofulous conditions on the extremities.

Bruce-Clark, "Surgery of the Kidney," p. 112.

Case XLV.—Child, seen with Dr. Norman Moore, "Seemed to be a well-marked case of tuberculous kidney. Tumor in left loin for past nine months; urine contained considerable amount of pus. No signs of passage of gravel or of renal calculus. General emaciation and loss of appetite."

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[1] Access to the original report of this case was not possible. The abstract of the autopsy does not seem to confirm the clinical history or justify the closing statement.

Bruce-Clark, "Surgery of the Kidney," p. 107.

Case XLVI.—Patient of Dr. Samuel West; May 20, 1884, aged fourteen years; fair health. Has had fits of abdominal pain and diarrhœa. Present illness of three months' duration; lately several shivering fits. Violent perspiration during sleep; nausea. Vomited twice in last fortnight. He lost a good deal of flesh lately.

Present condition: Emaciated; looks ill. Tongue dry and red. Pulse 120. Swelling on right side of abdomen in region of kidney. Swelling dull on percussion; does not change with position of patient.

Urine: Varies from acid to alkaline in reaction. Copious white deposit which does not clear up with heat and nitric acid. Specific gravity 1025; one-tenth albumin. Pus seen with microscope. Micturition is frequent.

Tumor fluctuates; June 3, aspirated, withdrawing fifteen ounces of greenish, stinking pus. Note of June 12, temperature runs up to 103° F. at night; is normal in the morning. Swelling and pain have increased; considerable pus in the urine; made an incision into the kidney; no stone. Died one month later, pus escaping constantly.

Autopsy.—Tuberculous disease of the right kidney, which was dilated to a mere sac, but little kidney substance remaining. No tuberculous mischief in any other part of the body.

Bardenheuer, *Mitteilungen aus dem Kölner Berger Hospital*, 1890, p. 10.

Case XLVII.—Boy, aged four years. Without antecedent tuberculous history. Sick for three weeks. In the course of a cold there appeared a tumor in the left lumbar region; painful to the touch. Even slight movement made the infant cry, and especially when he was lifted up by the arms or rubbed. The general condition was sometimes good and sometimes bad. The infant is pale and has a drawn, haggard look. He lies coiled up and screams upon the least touch. In the left lumbar region is a voluminous tumor which is painful, and on this account embarrassing the examiner. Under chloroform the tumor was found to fill the space between the diaphragm and the pelvis on the left side entirely; it was very tender and elastic to the touch; no fever. The urine is cloudy, contains albumin, and, microscopically, blood, pus-corpuscles, caseous masses, and bacilliform micro-organisms.

April 20, 1882. An incision was made into the tumor and an enormous quantity of pus mixed with caseous material exuded. By the combined palpation of the wound and the abdominal wall one finds the kidney pushed forward. A probe penetrates into the renal parenchyma, very likely into an abscess. The kidney was removed. On its surface were found dull, yellow spots; it is very anæmic and friable. In the cortical substance is a caseous cuneiform centre. Recovery followed with the clear urine.

Reginald Harrison, *Lancet*, April 18, 1885.

Case XLVIII.—A boy upon whom circumcision was performed for elongated prepuce and urinary irritability. Autopsy some time after revealed extensive renal tuberculosis with almost entire atrophy of one kidney.

Duret, *Journal des Sciences Médicales de Lille*, 1894.

Case XLIX.—Boy, aged eight years. Twice under care for troubles of micturition, which consisted chiefly in pain and incontinence of urine. The symptoms led to suspicion of vesical calculus. Several soundings resulted negatively. The cystitis was treated and the patient went from under treatment improved, several times. He returned again with a voluminous tumor of the lumbar region. An in-

cision was made which caused a discharge of a considerable quantity of pus. The general condition but little improved. Nephrectomy was intended, but the parents removed the child and he was lost sight of.

Carr, International Medical Magazine, 1893, p. 498.

Case L.—Child, under twelve years. Both kidneys in an advanced stage of so-called scrofulous degeneration.

Von Muralt, *Correspondenzblatt für Schweizer Aertze*, 1887, p. 242.

Case LI.—Boy, aged thirteen years. While in good health became suddenly ill with high fever. On the following day developed pain in the right kidney region with hæmaturia. Very large perinephritic abscess developed, which was laid open. There was a discharge of pus through the bladder. Nephrectomy was done; recovery ensued. Tubercle bacilli, after many examinations, were never found.

Von Muralt, *Correspondenzblatt für Schweizer Aertze*, 1884, p. 585.

Case LII.—Girl, aged ten years, with no hereditary tendency. In the summer of 1880 she had voided thick, muddy urine, but not after that until the spring of 1882. There developed, with pain and fever, a large swelling in the region of the right kidney. The patient applied to the Children's Hospital on July 14, and the perinephritic abscess, which constituted the swelling, was emptied by a broad incision in the lumbar region at a point where perforation threatened (twelve hundred and fifty cubic centimetres of pus, no kidney substance, but tuberculous matter; extirpation would not then be permitted). This resulted in immediate fall in temperature, improved general condition, increase in weight, and by November 8 patient in good condition, with little discharge of pus. Was better for three months. Reappeared at the hospital on January 31, 1883, with high fever. March 24 operation was granted. A partly cystic, degenerated, tuberculous kidney with enormously thickened capsule was removed. Great improvement for four weeks, when perforation of the duodenum occurred and patient died.

Necropsy.—Perforation of the duodenum by a sinus into the abscess cavity. Tuberculosis of right ureter and bladder. Left kidney and ureter healthy. Two old scars in left lung, and an old, cheesy, calcareous bronchial gland.

Kummell, *Deutsche Medicinische Wochenschrift*, 1890, p. 1000.

Case LIII.—Child, aged two and a half years. Had frequent painful micturition, and pain in the region of the bladder. The urine contained albumin and abundant sediment without real elementary ingredients. Examination under narcosis. Enlargement of one kidney which, with rapid progressive emaciation, led to diagnosis of tuberculosis of the kidney. Nephrectomy was done and recovery ensued.

König, *Verhandlungen der deutschen Gesellschaft für Chirurgie*, 1890, p. 70.

Case LIV.—A young maiden. Very well nourished. Complained of hæmaturia. Examination of the bladder showed it healthy. Tuberculosis of the kidney was suggested, because one kidney was decidedly large and painful, and so soon as it was pressed upon the bleeding increased quite enormously. The tumor was quite apparent, and the condition was thought to be unilateral. Excision was done.

The whole kidney was transformed into a number of large caseous foci, but little kidney substance existing. The pelvis and ureter were greatly dilated, and stuffed full of cheesy masses. The bleeding continued, and it was pretty definitely deter-

mined that the other kidney was diseased, and that it was the source of the bleeding. König thought the operation had done no good, but surely no harm.

Schmid, *Münchener Medicinische Wochenschrift*, 1892, p. 255.

Case LV.—Boy, aged twelve years. Previous health good. Since five months has had irregularity in urination,—pain and incontinence. The urine was ammoniacal; contained much pus. There was no stone or tumor revealed in the examination of the bladder, and no tumor in the kidney region. Despite local and general treatment the patient's condition grew worse. Light, fluctuating fever developed. In December, 1890, a perineal section was done. The finger introduced into the bladder revealed incrustation and proliferation upon the mucous membrane of the bladder, which was scraped off. Temporary improvement followed. The bladder was scraped off several times after, but the incontinence remained quite the same. The condition grew worse, and the patient was nearly always bed-fast. On May 10, 1891, a tumor was discovered in the right kidney region, which could be described as a pyonephrosis. On May 20, nephrotomy by the lumbar incision was done. After incision of the pelvis pus escaped in large quantity, but no stone. No improvement followed. Moderate amount of albumin was present in the urine, and the fever continued. A diagnosis of tuberculosis of the right kidney was made. Whether it developed as a primary tuberculous cystitis with secondary involvement of the right kidney, or whether the tuberculosis first laid hold of the right kidney and had caused no symptoms there, and, dependent upon it, a tuberculous cystitis had developed, must remain undecided. Notwithstanding the poor prospect and miserable condition of the boy, the dilated kidney was extirpated, and the stump brought into the wound. But the vessel was so short that after tying and securing it by suture for safety three clamps were left lying in the wound. The peritoneum was not opened. The boy recovered quickly; the fever vanished; the urine was copious and finally quite clear and free from albumin; only the incontinence lasted. Dismissed in December, and in March of 1892 continued well. Examination of the resected kidney showed that fatty degeneration existed, and that in several spots distinct tuberculous foci existed.

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CHRONIC HERPES OF THE FAUCES.

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As "chronic herpes of the fauces" it is here meant to designate a chronic vesicular affection of rare, yet typical occurrence, which invades the region of the fauces and soft palate as a distinct and apparently independent disease, having its own characteristic course which, when followed out, suffices to distinguish it from certain other affections of the throat from which it is, at times, of the utmost importance to differentiate it. Herpes, being essentially an acute affection, invades the region of the fauces oftenest in an acute form, although an erroneous impression as to its frequency has undoubtedly been conveyed by confusing it with other affections. Bretonneau was probably the first to maintain that a common form of sore throat, which he called "common fibrinous angina," characterized by the exudation of fibrinous material and the formation of false membrane, was

nothing other than a progressive development of an herpetic eruption, the vesicles of which, owing to their ephemeral existence, were rarely seen. Bretonneau's observation was confirmed by Trousseau,[1] and further demonstrated by Grubler. Grubler,[2] however, looked upon the herpes as a kind of eruption in the throat which constituted, as it were, the crisis of a fever. Following these observations and the report of several epidemics of sore throat characterized by an herpetic eruption, non-diphtheritic exudative inflammations in general were frequently referred to in the literature as "herpetic tonsillitis," and this has, unfortunately, resulted in no little confusion; so that we find in the literature of to-day even typical cases of follicular tonsillitis classed as herpes. At the present time the view is advanced, and has many advocates, that aphthous stomatitis is identical with herpes. Thus we are confronted with the proposition that common membranous sore throat, characterized by tumefaction of the tonsil and the formation upon its surface and adjunct tissue of yellowish-gray patches which tend to become confluent, and aphthous stomatitis, with its widely-sown, scattered, punctate eruption, its excessive salivation, are one and the same affection. It is to be borne in mind that, aside from the herpes which may develop during general pyrexial diseases, such as pneumonia, rheumatism, etc., herpes may occur as part of, and apparently called forth by, infectious or other inflammatory diseases of the throat, in contradistinction to that form of herpes which is in the nature of a zoster,—that is to say, apparently due to irritation of the nerves or nerve-centres from some unknown cause. Now, herpes does occur on the mucous membrane of the throat in a form which is characteristic of herpes of other parts,—namely, as an independent eruption of more or less clustered vesicles, apparently of nervous origin, and this may be beautifully verified in that form of the disease to be considered.

Chronic herpes of the pharynx is rarely met with, and the literature upon the subject is extremely scant, yet when it does occur the repetition of the vesicular eruption renders its detection more certain, and the progress of the affection to its later stages may be so closely followed as to establish beyond a doubt the independent occurrence of the affection in this region. The first manifestation of herpes in the mucous membrane, as upon the cutaneous surface, is the appearance of minute papules upon an erythematous patch; this is followed by fluid exudation, which accumulates at the level of the granular layer of the epidermis, and the papules are thus rapidly replaced by vesicles. As pointed out by Hebra,[3] however, the future progress of the affection is materially modified by the nature of the tissue attacked. "On the cutaneous surface the eruption consists of vesicles distended with a clear watery fluid, which are arranged in clusters and which remain intact for a considerable time. In the mucosa, on the other hand, the formation of vesicles does not go beyond its earliest stage." Owing to the delicate nature of the epithelium the vesicles are rapidly ruptured, and we, therefore, usually see on first inspection a number of white spots, perhaps as

large as lentils, which are due to the maceration of the epithelium, and where this has become detached, we further see circumscribed, shallow excoriations which correspond to the destroyed vesicles. When we add to this the fact that these erosions, before healing, usually become covered with fibrinous exudation, we have the characteristic features of an acute attack of herpes of the mucous membrane.

Now, chronic herpes is characterized not only by a protraction of the above process and the tendency to the formation of a denser sheet of membrane by the extension of the smaller isolated patches of exudation upon the inflamed area, but repeated exacerbations may be seen to occur at points previously uninvolved. Fresh crops of vesicles develop at various times which, as in the case of the acute attacks, may rapidly cicatrize after rupture, or possibly even undergo rapid absorption without rupture, but which usually give rise to new erosions and fibrinous deposit upon a new area of inflammation, so that by frequent observation we may not only see the disappearance of the process at one place and its sudden development at a new one, but at times also see the vesicles themselves and observe the field which they occupied become converted into small, isolated, filmy patches, and later merge into dense, confluent sheets of membrane which cannot be distinguished from the pseudo-membrane of diphtheria.

As illustrative of these facts, the two cases submitted below, which the writer was fortunate enough to have under close observation, are given somewhat in detail.

Case I.—Miss N. W., aged twenty-four, evidently of neurotic temperament, had been attacked three years ago, while in Europe, with a painful affection of the throat, accompanied by some fever, during the course of which white patches formed in her throat, which soon loosened, so that they appeared as flakes or shreds upon her tongue. The condition would improve and then get worse again,—that is, more patches would form, till after some three or four months it disappeared altogether. Upon her arrival in this country, a year later, the affection broke out again, accompanied by an aching pain in the throat, and it was at that time pronounced diphtheria. It lasted, as upon the former occasion, several months, varying in its severity, to finally disappear entirely. As the condition had again developed, she came to consult about it. At first inspection of the pharynx there was to be seen upon the side of the uvula an irregular membranous patch about as large as a three-cent piece; upon the anterior and posterior pillars of the right fauces several smaller, grayish-white patches, two of which were confluent; the smaller patches being for the most part mere films; that upon the uvula thick, opaque, and membranous in appearance. Within the inflamed area occupied by the smaller patches a number of circumscribed, denuded spots were to be seen; beyond the patches the tissue remained normal in appearance, and at this time the tonsil was not involved.

Within a week from the day they were first seen the patches had become confluent, so that one large triangular sheet of membrane extended from the uvula to and over the left tonsil. At places this membrane appeared loosened, and at the tip of the uvula was folded back upon itself in the form of a flap. Upon attempting to remove it with a forceps, however, it proved to be quite firmly adherent, and the denuded surfaces bled where it had been detached. Several flakes of the membrane were sent on two different occasions to expert bacteriologists at the City Hospital,

who found, beyond the presence of the staphylococcus pyogenes, nothing which indicated the nature of the affection which gave rise to it. After a lapse of three weeks the condition had almost entirely disappeared under treatment, when an exacerbation occurred upon the opposite side of the throat, marked by pain, inflammation, and the appearance of a number of scattered white spots, and the patient then first informed me that she sometimes felt blisters in the back of the mouth, which were easily broken. With this new light upon the case I established a close watch, and instructed her to come to me at once when she thought that blisters were present, and by this means I was enabled, during a period of several months, to detect upon two distinct occasions the presence of vesicles or blebs upon the affected mucous membrane. At one time there were two tense, glistening blebs upon the side of the uvula, one of them the size of a split pea; at another time there was a cluster of six or more opaque vesicles at a point previously uninvolved, all of which remained upon the mucous membrane but a few hours. Following the rupture of the vesicles, isolated, filmy patches soon occupied the field of the eruption, which, when left to themselves, speedily became confluent. This patient was exhibited at the meeting of the Ohio State Medical Society, the disease having been allowed to run its course unchecked for several weeks previous. At that time the uvula, the pillars of the fauces, and both tonsils were completely covered with a dense, grayish-white membrane; in places closely adherent, in others loosely attached, so that it formed parallel folds across its surface, or even hung in shreds. Neither then nor at any time while under observation did it invade the posterior pharyngeal wall. Although it yielded temporarily to a varied treatment, so that the membranous deposit for the time being entirely disappeared, the affection was frequently lighted up again during a period of thirteen months. It finally faded away entirely, and has not recurred in the past two years.

Case II.—J. R., aged twenty-two, presented himself with a severe aching of the throat, accompanied by heat, dryness, and difficulty in swallowing. For several years past he has had similar attacks which had twice developed into membranous diphtheria, and he believed that he was about to suffer from a recurrence of that disease. Temperature, 101° F. Upon illuminating the throat two distinct fields of inflammation were noticeable, the one covering the region of the uvula, the other upon the lower part of the arch of the right anterior pillar. Upon each of these a number of round or oval white spots were scattered. At the base of the pillar, interspersed among the spots referred to, eight or ten yellowish, semi-opaque vesicles of the size of a millet-seed were plainly visible, several of which were ruptured by puncture. Upon inspecting the pharynx on the following day, nothing resembling a vesicle was seen. During the ensuing week small, irregular, filmy patches made their appearance in the region attacked, which, however, were held in check by applications of nitrate of silver, and, the soreness having left the throat, the patient ceased coming. Several weeks later he again appeared with a renewal of the painful symptoms. The picture of the affection at this time had undergone a complete change, the region of the uvula was normal in appearance, and upon the left side of the pharynx and the left tonsil a number of irregular membranous patches were to be seen. These proved more persistent than upon the former occasion, and would heal and become detached at one point only to develop at another; but as the pain and irritation passed away the patient, who lived out of the city, ceased coming, so that it was, unfortunately, not possible to follow the further course of the disease.

In view of the slight and transient nature of the general symptoms which ushered in the protracted local affection, the idiopathic nature of these cases is hardly to be questioned.

While the limited extent of the lesions does not justify their classification as a zoster, the neurotic nature of the eruption was strongly indicated. In both cases the vesicles were distinctly clustered, and the eruptions confined to limited areas, usually in several places on the same side, which, however, extended at times beyond the median line, and which disappeared in one region only to attack another. A limitation of herpes in any form by the median line within the pharynx is, in the light of existing knowledge, hardly to be expected, since it has been shown by the most painstaking and thorough investigation of Voigt, during which he succeeded in laying bare nearly all the cutaneous nerves quite to their peripheral extremities, that in the middle line of the body, as well as in other regions, the end filaments of the cutaneous nerves encroach upon the neighboring nerve territories in such a way that strict boundaries or entirely neutral zones hardly exist at all.

That herpes can be caused by irritation or disease of nerves or nerve centres is not only positively established by the well-known researches in cases of herpes zoster, by Bärensprung, Mackenzie,[4] of New York, and others, but is also indicated by repeated instances in which it has been called forth by peripheral irritation, as, for example, in the cases following operations upon the teeth, reported by Dr. T. David,[5] of Paris. Kaposi, from his investigations, has concluded that the disease is not always associated with inflammation of the ganglia, but that it may arise in the nerve often as its peripheral distribution.

Herpes, then, occurs in the pharynx as a chronic affection in a typical form; it is probably neurotic in character.

In chronic herpes the vesicular eruption may be more frequently observed than in the acute affection, and the progress of the disease more accurately followed.

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OBSERVATIONS ON ANTITOXIN IN DIPHTHERIA.[1]

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In writing these papers I have proposed to limit myself, in the main, to simply presenting and arranging the clinical data furnished by the hospital records, from which every one may draw his own conclusions. In observing a large number of cases of a single disease, all subject to the same method of treatment, one usually forms a more or less decided opinion or, at least, impression of the value of that treatment. In the present instance, however, I must admit that I am as yet unable to range myself either among the enthusiastic advocates of diphtheria antitoxin or with those who unqualifiedly condemn it. Perhaps if I touch upon some of the clinical features of diphtheria as modified by the administration of antitoxin in the Willard Parker Hospital, the reasons for my position may become apparent.

Among the favorable results claimed to follow upon the injection of antitoxic serum are a prompt improvement in the general condition of the patient, a strengthening of the action of the heart, a fall of the temperature, a rapid disappearance or "melting away" of the membrane in the throat, and marked relief of laryngeal stenosis. I have already said that I believed that antitoxin often had a favorable effect upon the laryngeal symptoms, and I am inclined to think that this is especially true of the intubated cases, which seem to do better under antitoxin than without it. On the other hand, I have failed to note any effect, favorable or otherwise, upon either the pulse or the temperature, nor have I ever seen any "melting away" of the membrane which is not also observed in cases which have not received antitoxin. There is a case now in the wards in which the membrane has persisted for three weeks, although antitoxin was given on the third day of the disease. The general condition has also usually remained unaffected, except as it might be influenced by the relief of laryngeal stenosis referred to above.

Now as to the alleged untoward effects of antitoxin. It has been said to cause nephritis, or, at least, albuminuria, to favor post-diphtheritic paralysis, to dissolve the red cells of the blood, and to set up septicæmia in some manner as yet unexplained. In regard to all these clinical phenomena, I can only say that I have failed to observe them, though I have looked for them day by day, particularly during the past eight months.

[1] Supplementary to a paper on "Observations on Antitoxin in Diphtheria,' appearing in December issue of the INTERNATIONAL MEDICAL MAGAZINE.

Cases have shown albuminuria as in previous years, and, in the opinion of one of the resident staff, rather more often than formerly, but casts or other evidence of nephritis have been absent. Suppression of the urine occurs, but not with unusual frequency. With the exception of simple regurgitation, due to temporary paresis of the palatal muscles, I should say that post-diphtheritic paralysis has been noteworthy by its absence during the present year. With regard to the destruction of the red cells of the blood, or the occurrence of septicæmia, I have seen nothing which would lead me to attribute either of these morbid processes to the administration of antitoxin rather than to the diphtheritic poison itself. Among the hundreds of cases treated this year in the hospital there is but one in which, in my opinion, antitoxin may have contributed to the fatal termination. In the case in question, a severe one at the outset, a synovial inflammation developed in several joints some ten days after the injection of serum, coincident with an urticarial eruption covering the legs and trunk. The fluid in the joints became purulent and the signs of broncho-pneumonia were found in the lungs. After a protracted illness the child died, and on autopsy, in addition to the pus in the joints and the pulmonary consolidation, there was marked fatty degeneration of the heart and kidneys. This case would probably have died from the other complications, but we cannot but associate the joint process with the giving of the antitoxin.

REVIEW OF MEDICINE.

MEDICINE.

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Fever in the Course of Bright's Disease and in Uræmia. (*American Journal of the Medical Sciences*, November, 1895.) By Alfred Stengel, M.D., of Philadelphia.

Fever may occur in the course of Bright's disease under three conditions: first, at the onset of acute nephritis as a result of the infection or intoxication causing the disease, or of the inflammatory or degenerative lesions in the kidney itself; second, in the course of acute or chronic Bright's disease as a result of various complications; and, third, in uræmia. The fever associated with uræmia may be sudden and pronounced, and

associated with coma, delirium, or convulsions,—eclamptic fever; or it may be more general, more lasting, less marked, and associated with typhoid symptoms,—slow uræmic fever.

A Case of Anthrax Septicæmia in a Human Being associated with Acute Anthrax Endocarditis and Peritonitis. (*Bulletin of the Johns Hopkins Hospital*, September to October, 1895.) By George Blumer, M.D., of Baltimore.

This case presents the œdematous form of anthrax which is very rare in this country. It is probable that the infection took this form because of its location about the eyelid, in which region the skin is very thin and the cellular tissue loose in character. The patient, a man, aged fifty-nine years, became infected on May 9, 1895, by scratching his eye while working on South American hair. Two days later he was admitted to the hospital with an œdema which closed both eyes. Several vesicles appeared on the tense, overlying skin of the lids of the right eye, and a marked œdema extended over the forehead to the left side and down the face and neck to the clavicles. The glands of the neck were moderately enlarged and tender. On May 14, sharp, constant, cramp-like pains were felt in the umbilical region, and the abdomen was extremely sensitive to pressure; the pulse was almost imperceptible; the temperature subnormal. The patient died on the same day.

Autopsy.—The points of greatest interest are œdema, which was greatest on the right side, extended over the entire head, face, neck, and clavicles, and down onto the chest. The epidermis was peeling on the right side of the face and contained much serum-like fluid. The peritoneal cavity contained at least two thousand cubic centimetres of fluid, and large and small ecchymoses were found on the serous membrane. The mediastinal tissues were swollen, œdematous, and contained gas bubbles. Both lungs were emphysematous and œdematous and nearly covered the heart. The pericardium contained gas; the heart muscle was friable and pale; small, quite recent vegetations covered by small, red clots were found along the free edge of the mitral valve and along the aortic segment. The liver was dark in color and cloudy; the spleen was moderately soft and red in color; the kidneys were swollen and congested; the adrenals and pancreas were normal, the stomach showed a deeply congested area in the pyloric region; the duodenum was uniformly congested, jejunum and ileum less so, but at intervals were small, elevated, deeply congested or hemorrhagic foci which projected above the surface of the intestine and did not seem to correspond to the lymphatic follicles. The serosa over them was hyperæmic or hemorrhagic and bulged out. Several of the nodules showed superficial ulceration. The mesenteric glands were hemorrhagic and softened. The large intestine showed congestion, but no foci.

Bacteriological Examination.—Cover-slips and cultures made during life from the serous fluid and blood showed large bacilli, morphologically

resembling the bacillus anthracis. Cultures made from the different organs after death gave the bacillus anthracis alone. Mice inoculated with this culture died in twenty-four hours.

Histological Examination.—The vegetation on the heart valve consisted mostly of fibrin with some granular matter, red blood-corpuscles, polynuclear leucocytes, with anthrax bacilli. The bacilli were more numerous in the blood-vessels of the lungs than in any other organ. A moderate degree of chronic interstitial pneumonia was found. The liver showed a well-marked interlobular cirrhosis with bacilli in the blood-vessels between the cells. The kidney showed a localized connective-tissue formation. Anthrax bacilli were present in the slight exudate covering the surface of the kidney, but were most abundant in the Malpighian corpuscles. Beneath a necrotic area in the stomach were two ruptured blood-vessels from which spreading masses of bacilli extended to the mucous membrane. Anthrax bacilli were found in all portions of the intestinal wall, but in greatest numbers in the submucosa. The blood-vessels were intensely dilated, with rupture of the vessel wall in some places. Necrotic areas were frequent on the surface of the intestinal wall.

Endocarditis and Intermittent Fever. (*Boston Medical and Surgical Journal*, November 7, 1895.) By George Dock, M.D., of Ann Arbor, Michigan.

The following cases emphasize the importance of careful diagnosis and prognosis in those obscure forms of endocarditis which simulate malarial fever. In the first case a malignant endocarditis affecting the mitral valve and the left auricle developed *post partum*. Mrs. N., aged twenty-six years, was confined January 16, 1895. The child was delivered with forceps, and a slight laceration of the perineum was immediately repaired. Slow recovery for three weeks was followed by weakness, chills, fever, and sweating. The patient was treated for malaria without effect, then examined for symptoms of sepsis with a negative result. The writer then saw the case and diagnosed malignant endocarditis due to puerperal infection, probably assisted by an old symptomless lesion of the mitral. A loud grating systolic murmur, louder over the apex, was heard all over the thorax, in the axilla, and over the back; a second, soft, systolic murmur was heard along the edge of the sternum. The temperature record showed remission or even a continued type at first, then a pure intermittent fever. The patient died April 13. The autopsy confirmed the diagnosis. Masses of vegetations were found on the mitral and aortic valves and over the endocardium. Large numbers of streptococci were seen on microscopical examination. The second patient gave a history of chronic cystitis, and had suffered for some months with chills, fever, and sweating at irregular intervals, and was pale, weak, and emaciated. Malaria was suspected, but a blood-examination proved negative. An examination of the heart showed an enlarged area of cardiac dulness, a rough systolic murmur confined to the region of

the apex, and another systolic, high-pitched murmur, transmitted in all directions but heard loudest over the apex. Later, a chill, vomiting, and prostration, with pain in the left side over the much-enlarged spleen, was thought to be due to an infarct. An examination of the urine showed an excess of leucocytes and large numbers of streptococci. Improvement and normal temperature were suddenly followed by death. The autopsy showed œdema of the lungs, dilatation and hypertrophy of the heart, thickening of the aortic leaflets, and streptococcus vegetations on the mitral. The spleen was adherent to the liver and contained five infarcts. Three old infarcts were found in the left kidney. The bladder walls were thickened, and the mucous surface dotted with pus. Infection from the bladder was engrafted upon an old lesion of the valves. The third case had a history of heart-disease fifteen years before. He was treated for malaria, but gradually grew weaker and died rather suddenly with asphyctic symptoms. Vegetations containing masses of streptococci were found on the valves, but the mode of infection could not be discovered.

Chills in Typhoid Fever. (*University Medical Magazine*, November, 1895.) By William Osler, M.D., of Baltimore.

Chills may occur in connection with typhoid fever,—first, at the onset of the disease, as seen in thirteen cases out of a total of seventy-nine treated at the Johns Hopkins Hospital during the sixth year. Second, at the onset of the relapse, due to an irregular or a disturbed elimination of the poison, a large volume of which is thrown into the blood in a short time. Third, as a result of treatment, antipyretics being particularly prone to produce chill, and this phenomenon may occur after the injection of sterile cultures of bacilli and after the external application of guaiacol. Fourth, with the onset of complications, such as pneumonia, pleurisy, acute otitis, suppuration in the mesenteric veins, pyæmic abscesses of the kidney, perforation of the ileum or appendix, or an acute periostitis. It may occur with thrombosis of the femoral or saphenous veins, and it may precede acute and fatal hyperpyrexia. Fifth, during convalescence in severe and protracted cases. In such cases there may be no local symptoms to account for the chills, and, though alarming, they may gradually subside, with complete recovery. They may possibly be septic. Sixth, chills may be due to concurrent malaria. While attributed, as a rule, to malaria, chills in the course of typhoid fever are very rarely due to this cause. Among three hundred and thirty-three cases of malaria and three hundred and eighty-nine cases of typhoid fever treated at the Johns Hopkins Hospital, in no instance have the diseases been concurrent.

Tetanus Consecutive to a Bite of the Tongue in an Eclamptic. (*Revue des Maladies des Femmes*, October 25, 1895.) By M. Abelin, of Bordeaux.

The author reports the following case: An eclamptic woman presenting

a deeply-bitten wound of the tongue was brought to the Maternity at Rochefort. The attacks diminished under injections of chloral, and disappeared altogether after delivery, which was hastened by the application of forceps. The patient appeared to be cured, when, eight days after confinement, she began having attacks of tetanus and died in forty-eight hours.

It is probable that the wound of the tongue had been contaminated by the dust on the floor of the vehicle in which she was conveyed to the hospital. That the point of entrance of the germ had been the tongue, and not the uterine wound, was proved by the fact that the first attack of tetanus was preceded by violent pain in the tongue.

The Practical Value of Laveran's Discoveries. (*Medical News*, November 23, 1895.) By William Osler, M.D., of Baltimore.

There are several aspects in which Laveran's studies may be considered of immense value:

The Relation of the Protozoon to the Acute Infections.—As a direct outcome of the study of the protozoal parasites of paludism may be mentioned the brilliant discovery, by Theobald Smith, of the parasite of Texas fever, also a hæmatozoon connected in its life-history with the cattle tick (*Boophilus bovis*). Observations have also been made upon amœbic dysentery and certain skin-affections, and the question of the protozoal origin of carcinoma has been revived.

The Diagnosis of Malarial Fever.—Laveran's work has revolutionized the study of fevers. The parasites are now known to be present in all forms of malaria, and constitute a diagnostic criterion of unfailing accuracy in uncinchonized subjects. It is in the study of the fevers of the tropics, however, that his discovery will prove of the greatest service, and, as shown by the work of Vandyke Carter, in India, and Dock, in Galveston, the differentiation of malaria from other fevers is quickly made. The publication by the New Sydenham Society of Laveran's monograph, the works of Marchiafava and Bignami, of Mannaberg, and the monograph of Thayer and Hewitson, containing the most extensive and complete bibliography yet published, give access to all the available literature on this subject, and should prove a great stimulus to the study of tropical fevers from the new stand-point.

Malaria has often been diagnosticated in cases in which chills and fever were due to other diseases, simply because the patient has had recurrent chills. Perhaps the most frequent mistake is in the chills and fever of tuberculosis. Septicæmia, abscess of the liver, pyelitis, pyelonephritis, gall-stones, and empyema are overlooked in the same way. The profession at large has not yet laid to heart the following rules: 1. That the diagnosis of the malarial fevers can be made with certainty by the blood-examination. 2. That an intermittent fever which resists quinine is not of malarial origin.

Malaria and Vital Statistics.—In the United States Census Report for

1890, which covers the six years ending May 31, the deaths from malarial fever in Baltimore, New York, and Brooklyn exceeded those from typhoid. The writer has compared this report with those of the large hospitals of New York and Brooklyn, and with tables prepared under the direction of the Committee of Health in the last-named city, and has come to the conclusion that the mortuary bills dealing with malaria are false, due either to ignorance or to wilful deception on the part of those who made the returns. Malaria is a disease that rarely kills in the large towns on the Atlantic seaboard, and it behooves the profession to abandon the practice of making a careless diagnosis of the disease in every case of obscure fever which proves fatal, and the medical boards should refuse to receive a death certificate signed malarial fever without more specific details than have heretofore been demanded.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
Professor of Therapeutics, McGill University, Montreal, Canada,
ASSISTED BY
D. J. EVANS, M.D.

The Confessions of a Cocainist. (*Australasian Medical Gazette*, September 20, 1895.) By J. W. Springthorpe, M.D.

The devotee, a medical man of great mental endowments, first used cocaine when serving in the German army. He gave up the drug for four years, but then witnessed its wonderful effects upon a colleague, and could not resist the temptation to begin using it again. He says that within a month he was using from eighty to one hundred and twenty grains of cocaine daily. His largest single dose was twenty grains, which caused him to fall down suddenly and to remain in a cataleptic condition for some hours. He describes the sensations of a cocainist as, first, an indescribable excitement, with the thought of doing something great; then the hearing becomes enormously increased, and soon every sound seems to be an unpleasant remark about one's self; bugs and worms are felt, and even seen, upon the person and clothing, and later many frightful hallucinations, all of a persecuting character, are present.

He summarizes the physiological effects of the drug as follows: The cocainist early loses all appetite for solid food, but likes sweets. Diarrhœa is soon produced and immediate evacuation often follows large injections of the medicine. The drug is a powerful stimulant to the muscular system; it increases the number of respiratory and cardiac contractions; it increases the amount of urine, and enormously increases the amount of sweat; it stimulates the sexual appetite; the pupils are dilated after each injection. Mental processes seem quickened, but a kind of hypnosis intervenes so that the brain works without, and even against, the will. Hallu-

cinations and illusions make their appearance early. The sense of right and wrong is not abolished, but one does not care much about trifles, and in time may become a scoundrel or a criminal.

The cocaine habit is distinguished from others by the change of associations of the person, his neglected appearance, his dilated pupil, restlessness, hallucinations, illusions, and expression of anguish.

Etiology and Treatment of Certain Kinds of Cough. (*American Journal of the Medical Sciences*, November, 1895.) By Beverley Robinson, M.D., of New York.

Cough may be due to an engorgement of the lingual tonsil, and is then accompanied by the sensation of a foreign body lodged at the base of the tongue and by a desire to swallow constantly, with the feeling of a constricting band around the throat. These cases occur most frequently in middle-aged women, and are due to menstrual derangements, continued constipation, and an underlying rheumatic or gouty state. They may be due to micro-organismal affection or to syphilis. This variety of cough should be treated by the internal administration of the salicylates combined with local treatment by the galvano-cautery or the compound tincture of iodine. The last-mentioned solution is very efficacious.

A form of cough occurring in young children is due to the dropping of thick mucus or muco-pus from the naso-pharynx upon or into the larynx, or by an irritation of the posterior turbinated bodies brought on by local congestion. It may be due to an enlargement of the pharyngeal tonsil. The latter condition is to be treated by scraping with the finger-nail. If, after the scraping, there be much hemorrhage, Mackenzie's tanno-gallic powder may be used or the post-nasal space may be plugged. Where there is no enlargement of the pharyngeal tonsil a nasal spray of camphor, carbolic acid, and albolene, or applications of carbolic acid and glycerin to the nose should be used. It is important to avoid overloading the child's stomach at night. Hypersensitive areas in the pharynx, in the tonsillar region, upon the soft palate, in the hyoid or epiglottidean fossa may cause a cough. Of the internal remedies used for these conditions, codeine and terpin hydrate are the most beneficial. The causes of these sensitive areas are not always satisfactorily demonstrable. Paroxysmal cough may be due to irritation in the auditory canal, such as impacted cerumen; there are other instances in which the cough is due to impairment of the auditory function. In these cases the auditory condition should be treated in order to remove the cough, and if there is a lithæmic tendency that should be combated.

In some cases of chronic cough the most benefit will be derived from a change of air and scene; in other cases salicylate of sodium or the salts of lithium should be used; in still other cases quinine and arsenic or cinchona bark may effect a cure. In many instances of cough of various kinds great temporary relief may be obtained from dry vapor inhalations of dif-

ferent volatile fluids. The best combination of this kind consists of equal parts of camphor, menthol, and eucalyptus. In cases of cough arising from severe bronchial inflammation or in those from broncho-pneumonia inhalations of beechwood creosote mixed with steam are valuable as relieving the cough and in curing the disease. Cough due to inflammation of the pleura should be treated by blisters.

Schleich's Method of Local Anæsthesia. (*Medicine*, November, 1895.) By Louis A. Greensfelder, M.D., of Chicago.

The following are the formulæ for the solutions used by Schleich for producing local anæsthesia.

No. 1, Strong.

℞ Cocainæ hydrochloratis 0.200
Morphinæ hydrochloratis 0.025
Sodii chloridi (sterilized) 0.200
Aquæ destillatæ (sterilized), q. s. ad 100.000.—M.

No. 2, Normal.

℞ Cocainæ hydrochloratis 0.100
Morphinæ hydrochloratis 0.025
Sodii chloridi (sterilized) 0.200
Aquæ destillatæ (sterilized), q. s. ad 100.000.—M.

No. 3, Weak.

℞ Cocainæ hydrochloratis 0.010
Morphinæ hydrochloratis 0.005
Sodii chloridi (sterilized) 0.200
Aquæ destillatæ (sterilized), q. s. ad 100.000.—M.

One drop of a forty per cent. solution of formalin should be added to each of these solutions to preserve them. The fluid is injected and the part to be operated upon is surrounded by wheals of the injected fluid. These wheals may be carried into the deep tissues. The area for the primary needle puncture may be anæsthetized by a drop of ninety-five per cent. solution of carbolic acid.

The Treatment of Pneumonia by Means of Inhalations of Amyl Nitrite in Large Doses. (*Therapeutische Wochenschrift*, October 20, 1895.) By M. Hayem.

Hayem, in his numerous researches with amyl nitrite on infectious diseases of the respiratory organs, has found that under its use the hæmoglobin is changed into methæmoglobin in the blood-corpuscle without destroying the latter. Much larger doses can be used without danger than has been generally supposed.

The writer has not found this remedy of any value in tuberculosis, but in pneumonia it has given remarkable results. He gives forty-five drops in from three to five minutes, dropping fifteen drops at a time on a napkin and holding it near the mouth and nose of the patient, who inhales deeply.

In many cases larger doses are used, even from sixty to one hundred drops being inhaled without injury. During the inhalation the well-known symptoms appear. One inhalation is usually given daily, but in bad cases the remedy may be exhibited morning and evening. The treatment is carried on during the whole course of the disease and for two or three days after the temperature is normal. Alcohol may be given at the same time. The treatment with amyl nitrite has no marked influence on the duration of the disease nor on the temperature. It has a purely local action, which consists of lessening of the dyspnœa, of making the sputum less tenacious and more fluid, and in alteration of the auscultation sounds. This action is due to the effect of the drug on the circulation in the lung.

A New Astringent, Tannigen. (*La Presse Médicale de Belge*, September 25, 1895.) By D. de Buck, M.D.

To this product, a diacetyl of tannin, Meyer, of Marburg, has given the name of tannigen. It is a yellowish-gray powder, tasteless and inodorous, little or not at all hygroscopic, slightly soluble in water or in acid, but freely soluble in alcohol or in solutions of the phosphate, the carbonate, and the biborate of sodium. The saline solutions of tannigen have distinct astringent properties and precipitate mucin, albumin, and gelatin. The addition of an alkali or of borax redissolves the precipitate and hinders the astringent action.

Meyer's experiments on animals show that the gastric juice has no action upon tannigen, which passes on into the intestine and there exerts an astringent action. A small portion is passed in the fæces, but the larger part is absorbed, and is found in the urine in the form of gallic acid. Clinical results confirm these experiments. The dose is from 0.1 to 1.0 gramme, three times a day. Patients, even nurslings, take the tannigen very readily, and it is borne by the stomach without the slightest inconvenience. Its action in acute catarrhal inflammation of the intestine is more prompt than that of any other like curative agent, and it has a favorable effect in chronic intestinal catarrhs.

SURGERY.

IN CHARGE OF HENRY R. WHARTON, M.D.,

Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania; Surgeon to the Presbyterian Hospital, the Methodist Episcopal Hospital, and the Children's Hospital; Consulting Surgeon to the Presbyterian Orphanage,

AND

JOSEPH P. TUNIS, A.B., M.D.,

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A New Method of Performing Nephropexy. (*Revue Médicale de la Suisse Romain*, June 20, 1895.) By Dr. Vulliet, of Geneva.

The difficulties experienced in nephrorrhaphy from the cutting through

of sutures have led this author, in conjunction with Dr. Poullet, to attempt to find a tendon in the region of the kidney which could be used to secure the kidney in place. Their experiments upon large dogs resulted in the following method of performing nephropexy, based upon the fact, which they proved, that a tendon is capable of maintaining its vitality so long as one of its insertions remains intact. The operation consists of four stages. In the first the ordinary lumbar incision is made and the kidney is exposed. The wound is then tamponned while the second stage of the operation is proceeded with.

Three-quarters of an inch from the spinous processes of the last dorsal and the first and second lumbar vertebræ, an incision is made three inches in length. This incision passes through the integument, the superficial and the deep fasciæ, which latter is divided upon a grooved director, exposing the tendinous fascia of the spinalis dorsi and its attachment to the first lumbar spine. This tendon is raised upon a grooved director until two fingers can be inserted beneath it, then traction is made upon it gently, but forcibly, until it separates from the muscular attachment higher up. This then forms a cord the size of a large shoe-lace, eight to nine inches in length, having a few muscular fibres at its extremity. In the third stage the lumbar incision is reopened, and the hand in each wound makes bimanual palpation until the tissues are located between the lateral spines of the first lumbar and the twelfth dorsal vertebræ. A strong stylet is then passed through this space and the intervening muscular structures, from within outward, and the tendon is threaded into the eye of the stylet and drawn through into the perinephritic space. In the fourth stage of the operation the kidney is drawn well up into the wound, to facilitate the operation, and the tendon is passed beneath the capsule of the kidney by means of a spatula having an eye. The instrument enters at the upper margin of the lower fourth of the posterior surface of the kidney on the lateral border, and emerges at a point between the upper and second fourths. After the tendon has been passed, its extremity is fastened in the wound by a silver suture, the ends of which, as a matter of precaution, are carried to the skin edge of the wound. For a similar reason, a silver wire is carried beneath the tendon in the other wound and out at the edge of the incision. The wounds are then closed. The course of the healing was uninterrupted; the wound closing in eight days, by primary union. After that time the patient sat up. Seventeen days after the operation the patient walked and was up for a number of hours, made her own bed, and cared for herself without suffering fatigue or pain. A swelling could still be felt in the region of the kidney, which, however, a later examination showed to be inflammatory and not due to the presence of the kidney itself. The kidney was found to be in perfect position and immovable.

Twenty-four days after operation the patient was in perfect condition, without pain, and capable of doing everything. It was impossible to grasp and move the kidney.

The Deformities and Malformations resulting from Acute Infections in Bone. (*Medical Record*, November 2, 1895.) By Roswell Park, M.D., of Buffalo.

That acute inflammation of the structures found in bone is possible, is now a well-established fact. There are three localities in which these manifestations are most commonly met with,—beneath the periosteum, in the epiphyses, and in the diaphyses. These bone-infections are usually caused by one of four organisms, the tubercle bacillus, the staphylococcus, the streptococcus, or the pneumococcus; although in rare instances other organisms are primarily or secondarily present. Of these, tuberculous infection is the most common and is generally not acute; but an acute miliary tuberculosis of bone which corresponds in most essentials to similar invasions of the lungs is found, and is not sufficiently recognized, not being described in even the most recent literature. Its course is not as rapid as the pyogenic infections, and it takes an intermediate position between the latter and the chronic tuberculous lesions. The course of a bone-disease depends, first, upon the location of the lesion, and second, upon its character. If the lesion assumes a very acute type, and if there be prompt evacuation of morbid products, little deformity occurs. If, however, immediate incision is not made, there will be extension of the disease, with destruction of bone and possibly spontaneous perforation with sinuses, through which sequestra may protrude. If the acute focus be located in an epiphysis, the joint soon becomes infected and resection or amputation may be required. Again, the disease may assume a chronic form and be characterized by acute exacerbations. The frequency with which certain bones are involved is due to the rapidity of their growth. According to the investigations of Langer, the coefficient of growth in the femur is 4.38, in the tibia 4.32, in the humerus 3.97, and in the radius 3.83. This scale coincides with the frequency of disease in the bones mentioned,—deformities of bone as a result of inflammation are often found, especially in young children. There may be arrest of growth of the joint end of the bone and compensatory hypertrophy in the other and participating bone; muscle contractures may produce deformity in cases where the interference with joint function has not gone on to complete ankylosis; torsions and flexion may be caused by the pulling of muscles; dislocations and subluxations may be produced by muscle spasm or by destruction of the ligaments or by epiphyseal separations. Necrosis forms the most common result of osteomyelitis, and may involve the entire thickness of the bone or any portion of it, thus producing a weakening which may lead to fracture, deformity, or curvature.

Alveolar Sarcoma of the Kidney in a Six-Year-Old Child. (*Prager medicinische Wochenschrift*, May 9, 1895.) By Dr. Kopal, of Prague.

A child who complained of abdominal pain was found, by his parents, to be passing very little urine, and later, the presence of a tumor was dis-

covered in the right hypochondrium. Before operation the tumor extended from the right hypochondrium, superiorly to the liver, inferiorly to within three fingers' breadth of the pubes, and to the left to within an inch and a half of the median line, and was completely united to the lumbar muscles on the right side. The surface was nodulated and hard and the percussion note was flat. The patient was anæmic and thin, with normal heart and lungs, and with no fever; but he complained occasionally of pain in the abdomen. The lower extremities were not œdematous. The stools were delayed and the amount of urine markedly reduced. The line of incision for the operation was diagonally from the tenth rib to the symphysis pubis. The posterior layer of peritoneum was divided, externally to the ascending colon, and dissected up. The vessels and ureter were ligated and the tumor was removed; drainage was established both anteriorly and posteriorly. The child had slight fever for two days and after that a normal temperature. There was a noticeable increase in the amount of urine excreted during the day, the amount arising from five hundred cubic centimetres to sixteen hundred cubic centimetres *per diem*. The specific gravity was normal, there was no albumin and no crystals or tube-casts. The child gained rapidly in health, strength, and weight after the operation. The author believes these cases should be operated upon so long as there is no metastasis and the patient is in fair health.

Foreign Bodies in the Œsophagus. (*New York Medical Journal*, August 17, 1895.) By Harrison Allen, M.D.

The author has analyzed eighty-two recorded cases with the object of considering especially the symptomatology and morbid anatomy.

The interpretation of symptoms depends in a great measure upon a correct understanding of the anatomy of the regions through which the œsophagus passes. Four of these regions may be recognized, as, 1, the lower part of the pharynx and region back of the larynx; 2, the portion in the neck between the larynx and the sternal notch; 3, the portion in the chest between the sternal notch and the point of crossing of the œsophagus by the left bronchus; 4, the portion between the left bronchus and the cardiac end.

The left common carotid artery lies on the left side of the trachea, two inches above the bifurcation; the aorta, crossing in front of the trachea and descending on the left side, is peculiarly disposed to hold a foreign body. Both the common carotid artery and the aorta tend to support the left side of the œsophagus, while on the right side there is no such support, the œsophagus projecting slightly to the right of the trachea and lying directly against the pleura.

The following divisions of the subject are recognized: 1, spasmodic constriction of the œsophagus, regurgitation of food, and softening of the œsophageal walls; 2, emphysema; 3, interference with respiration, cough, etc.; 4, excessive mucous secretion; 5, nausea and vomiting; 6, hemorrhage;

7, anxiety; 8, abscess; 9, emission of air from the œsophagus; 10, pain; 11, convulsions; 12, syncope; 13, miscellaneous.

Spasmodic Constriction.—The contraction of the circular muscular fibres of the œsophagus over the obstructing body and in the fibres for a short distance above and below it induces a constriction which is doubtless the cause of the regurgitation of food. In young subjects especially the violent regurgitation following impaction of the œsophagus is characteristic. This fact is not mentioned by any of the monographers. Softening of the walls of the œsophagus can occur with alarming rapidity, as it offers but feeble resistance to the effects of traumatic inflammation. This is due to the fundamental fact that the canal is one for quick transit.

Emphysema.—Emphysema was found in fifteen per cent. of the entire number of cases. Its existence is of varying significance, but in most cases where it is noticed a fatal result ensues. It usually occurs when foreign bodies are lodged back of the hyoid bone. The point at which air enters the tissues is at the weakest part of the canal,—namely, at the place where the circular set of muscular fibres unites with those of the pharynx.

Interference with Respiration, Cough, etc.—The occurrence of dyspnœa is conclusive that a foreign body is lodged behind the larynx or upper part of the trachea, which is large enough to force the anterior wall of the trachea forward or to make such pressure as to excite laryngitis. Cough is induced by excitation of the mucous lining of the trachea, causing it to pour out an excess of mucus. Aphonia appears to be confined to women, and is doubtless reflex in origin. Hoarseness is usually associated with cough and does not require a separate analysis. Changes in the character of the voice, described as harsh, metallic, or chirping, are noteworthy.

Excessive Mucous Secretion.—This important symptom invariably signifies that in the neighborhood of the mouth and pharynx a foreign substance is exciting the mucous and salivary glands. This symptom is not even mentioned by general writers. It is of special value in determining the location of the foreign body and in making a diagnosis between a foreign body in the œsophagus and the presence of pus back of the pharynx. In the former the mucus is excessive, in the latter it is not.

Nausea and Vomiting.—These are among the most common symptoms of foreign body in the œsophagus. Vomiting as a secondary symptom seems of more serious import than when it is primary.

Hemorrhage.—The occurrence of hemorrhage signifies, as a rule, that the foreign body has caused ulceration of an important vessel or has directly wounded it. The entire percentage in which hemorrhage occurs is twenty per cent. The direction of the flow being upward, the blood naturally escapes by the mouth; but it may trickle into the stomach and cause hæmatemesis, or even bloody stools. Hæmoptysis is rare, only one case being cited.

Anxiety.—Anxiety is a prominent symptom, and Verneuil considers it an important one.

Abscess.—A foreign body in the cervical portion of the œsophagus rarely involves the periœsophageal structures. In the chest the offending body may make pressure forward. The descending aorta, the left carotid, and the left subclavian artery cause the descending body to be deflected to the right. Hence involvement of the left pleura or left lung is among the rarest of lesions. The right pleural sac or the right lung was involved in eleven cases out of twenty, as shown at the autopsy.

Emission of Air from the Œsophagus.—Belching is a symptom rarely present and of grave significance. In two cases the autopsy showed an œsophageal-tracheal fistula through which air was forced.

Pain.—Poulet asserts that pain in one spot is a most reliable aid in diagnosis. Its locality is not constant. In three cases it was referred to the cervical and dorsal vertebræ; in two it was over the epigastrium; in three back of the sternum; in one at the back of the neck.

The author concludes that "authors of monographs on foreign bodies in the œsophagus have overlooked the rapidity with which softening of the walls of the œsophagus occurs, the significance and value of emphysema, the occurrence of excessive mucous secretion, and the possibility of emission of air; and, in the second place, they have laid too much stress upon pain and convulsion, but not enough, at least in the adult, upon the presence of an anxious expression of countenance."

NEUROLOGY.

IN CHARGE OF LANDON CARTER GRAY, M.D.,
New York City,
GUY HINSDALE, M.D., Philadelphia, AND WILLIAM BROADDUS PRITCHARD, M.D., New York City.

On the Epileptic Origin of Ambulatory Automatism. (*Le Progrès Médical*, November 16, 1895.) By Dr. Dezwarte.

The name of ambulatory automatism has been given to the manifestation of certain morbid impulses occurring in neuroses or following cerebral disturbance due to traumatism. The causes, as usually considered, are epilepsy, hysteria, traumatism, and spontaneous or provoked somnambulism. This automatism may be an "epileptic equivalent," characterized by the unconscious accomplishment of the acts of ordinary life, more or less complicated with impulses to movement and travel. Instead of the impulse to movement taking the place of the convulsive attack (as "equivalent"), it may occur after the convulsion as a part of the epileptic delirium. Often the convulsive attack is replaced by one of ambulatory automatism, and

the same patient may be subject to the two forms at different periods. In the hysterical form also the impulse to movement may precede, follow, or entirely replace the convulsions. This variety, according to Charcot, is related to the spontaneous somnambulism seen in hysterical patients, and is merely the period of "*attitudes passionnelles*" (passionate attitudes) prolonged beyond the ordinary duration. The hysterical patients are not always unconscious during the entire attack, and may be subject to imperative conceptions which force them to accomplish certain things at all costs. The third class, which includes the cases of traumatic amnesia with automatism, is related to the epileptic form. Charcot related the case of a midwife, who, after a fall on the head, performed a delivery while unconscious of her actions during the whole time. These cases may occur some time after a fall on the head which has caused an irritation of the cerebral cortex capable of producing the attacks ("equivalents" of the epileptic attacks). These attacks are repeated thereafter.

It is only the spontaneous, pathological somnambulism pertaining to hysteria which ought to be included in the fourth class. The nature of the natural somnambulism is unknown. After giving this review of the ordinarily accepted forms, Dr. Dezwarte attempts to show that cases considered as hysterical ambulatory automatism are in reality epileptic. The convulsive attacks may be delayed a long time. Three cases are reported in detail. The diagnosis of hysteria has been made in the first case because of certain stigmata, because the attacks of vagabondage are related to spontaneous somnambulism, inasmuch as they present themselves with prodromes comparable to those in attacks of sleep, as they occur in a state of consciousness different from the normal, as the memory of certain actions performed during the attack is lost in the period of wakefulness and can be recalled in the hypnotic state. Dr. Dezwarte, however, believes that the patient is an epileptic. He relies on the history of a fall upon the head, since which time attacks of migraine have been frequent. It is well known that injury to the head may be the cause of epileptic attacks which, in their clinical character and periodic return, do not differ from ordinary epilepsy. He calls attention to the fact that the patient masturbates frequently, as most epileptics do; that he has total amnesia for the entire attack of automatism; that the mental depression preceding the attack in this case is not uncommon in epilepsy and may last several days. He mentions the indifference to fatigue, exposure, discomfort, manifested by the patient during his attacks. In verification of his diagnosis, in later years, true epileptic convulsions have developed. These attacks appear under the effects of hypnotism. The wife of the patient has noticed certain absences (*absentiæ epilepticæ*). The second case offers much similarity to the first. The third case was observed in the service of Professor Lemoine, and is an interesting picture of these strange impulses to vagabondage. It also belongs to epilepsy, according to the opinion of Dr. Dezwarte.

W. G. S.

Cancer of the Cerebellum and Cerebrum Metastatic from the Breast. (*Boston Medical and Surgical Journal*, November 28, 1895.) By Edgar Garceau, M.D.

This case was a typical one of cerebellar tumor. The cardinal symptoms—headache, pain in the occipital region, vertigo, vomiting, somnolency, stupor, and choked disk—were all present. But the most surprising feature at the autopsy was the presence of two cerebral growths in addition to the expected cerebellar tumor. One of these was at the posterior portion of the right cerebrum. The other was two and one-half inches anterior to the upper margin of the left Rolandic fissure, and was believed to be the cause of the convulsions of the right arm, right lower limb, and head, which were observed for two days before death. The metastasis was from a right mammary cancer, which had been removed two years previously. Eighteen years before this the patient had had a right mammary abscess.

Concerning a Case of Landry's Paralysis with Determination of Poliomyelitic Lesions in the Nervous Centres due to the Presence of a Microbe. (*Société médicale des Hôpitaux*, October 18, 1895.) By Drs. P. Marie and G. Marinesco.

A young man aged nineteen, a groom by occupation, entered the Hôtel Dieu, Paris, after complaining for fifteen days of general lassitude and rhachialgia, accompanied by all the phenomena which indicate a grave affection. The second night after his arrival an almost complete flaccid paraplegia, with some disturbances of sensation, developed; the latter soon disappeared, while the paraplegia persisted. Once or twice incontinence was observed. The sitting posture could not be maintained. The day following, the muscular force in the right hand was slightly lessened. Three days after admission to the hospital the paralysis in the superior members was evident, especially on the right side. Disturbance of respiration soon followed; the inspirations numbered 40 in the minute and were of the superior costal type. The pulse, which had been 120, became 65, and the temperature sank from 38.5° C. or 39° C. to 37.3° C. The phenomena increased in intensity, and death occurred in syncope seven days after the patient had entered. It was a classical type of Landry's acute ascending paralysis. The autopsy showed hemorrhagic softening, greatest in the lumbar region, involving the gray substance of the anterior horns. The histological lesions were studied by the method of Nissl, and consisted of considerable infiltration in the walls of the vessels in the anterior horns and pial septa. Most of the vessels were very hyperæmic; even hemorrhage was found, as well as foci of inflammation, sometimes in connection with the vessels, sometimes in the interstitial tissue. The alterations in the parenchyma of the anterior part of the gray substance of the lumbar region consisted in necrosis and disappearance of the nervous elements. In the dorsal and cervical regions the nerve-cells presented four grades of degeneration,—

(*a*) Degeneration by dissolution of the chromatin.

(*b*) Degeneration by rarefaction of the chromatin.

(*c*) Degeneration by dissolution of the paraplasma (with fragmentation of the cellular body and its processes).

(*d*) Transformation of the body of the nerve-cell into a homogeneous, refracting mass.

The nuclei of the nerve-cells were tumefied, their contour less distinct, the nucleoli not so well colored, and occasionally the nuclei were pushed towards the periphery. Many microbes having a great resemblance morphologically to the anthrax bacillus were found in the dorsal and cervical regions of the cord, and in the bulb and brain. In some places they caused complete obliteration of the vessels.

The authors consider the chief interest of the case as consisting in the following points:

1. In certain forms of Landry's paralysis central lesions relatively gross can be found, contrary to the opinion of those authors who have claimed the existence of peripheral lesions only.

2. Micro-organisms seem in this case to have played the chief *rôle* in the production of the lesions.

The authors are not able to name the bacillus which they have noticed. All the lesions, hemorrhages, perivascular and interstitial nodules, and degeneration of the nerve-cells, accord well with what is known of the effects of infectious processes in the tissues. W. G. S.

Treatment of Idiocy by Operation. (*British Medical Journal*, September 28, 1895.) By G. E. Shuttleworth, M.D.

The author's conclusion is that the experience of the last five years does not sustain the sanguine expectation of early operators regarding the beneficial effects of craniectomy in microcephalus. More benefit is to be anticipated from training than from operation, since the condition is generally dependent on faulty intra-uterine brain development rather than premature synostosis. Bourneville has shown that such operations tend even to diminish cranial capacity by exuberant bone-growth at the site of excision. In cases of mental deficiency with traumatic or hemiplegic pressure symptoms, the operation is indicated. In hydrocephalic and hypertrophic cases of imbecility tapping or trephining may be of service.

Diagnosis and Treatment of Epilepsy. (*La Semaine Médicale*, October 16, 1895.) By Gilles de la Tourette, M.D.

The tardy *début* of epilepsy is much more frequent than is usually believed, and the investigation of the anatomical condition has yielded the same negative results as in the form with early *début*. The essential epilepsy develops quite often in persons who have had syphilis ten to twenty years previously, and the mixed treatment has no result, though the bromide of potassium has a favorable influence. This form belongs to

the class termed by Fournier parasyphilitic affections. The pathological anatomy is little known. It is seldom that an epileptic begets an epileptic. Heredity is now considered only a predisposing cause. Injury to the head at birth and infectious maladies of childhood are agents acting by irritation and sclerosis. There are usually slight indications of the disease between the period of these causal lesions and the full development of the attacks. In the tardy form the *début* is often abrupt. The attacks are most common at rising in the morning, occur often also during the night, but are especially rare in the afternoon. A petechial eruption in the cervical region, due probably to extreme vascular tension during the tonic period, should arouse suspicion of nocturnal attacks. In difficult cases of diagnosis between attacks of epilepsy and of hysteria, the urine passed in the twenty-four hours after the attack helps the decision by showing an increase of solids (urea, etc.) in epilepsy, and a decrease in hysteria; also the proportion of earthy phosphates to alkaline phosphates remains unchanged in the former, is changed in the latter. In *état de mal* the temperature rises in epilepsy, and does not exceed the normal in hysteria. The only remedy of value for epilepsy is bromide of potassium, and the dose should never be stopped for a single day during the period of treatment. Give five grammes the first week, six the second, seven the third, and repeat in this order. Let the patient keep the number of his attacks in a book, and compare this with the treatment. Give the bromide so that two-thirds of the dose are taken two or three hours before the customary time for an attack. Always give in very diluted solution. Small doses of salol combined with the bromide are of value. The patient should never be allowed to sleep during the day. The dose of bromide may be diminished after a year and a half to two years in the rate of three, four, five grammes for two months, then two, three, four grammes for two months longer. The bromide must be continued indefinitely if slight symptoms remain, and it is necessary to determine the minimal dose which will prevent an increase in the number of the attacks. In cases where bromide fails to act, borate of soda may be combined with it. Absolute recovery does occur in some cases.

W. G. S.

Infectious Myelitis. (*Gazette des Hôpitaux*, September 5, 1895.) By MM. Grasset, of Montpellier, and Vaillard, of Val-de-Grâce.

M. Grasset does not take into consideration myelitis which is due to syphilis and tuberculosis, and studies the condition from a clinical point of view. He concludes:

1. It appears established that there is a frequent relation of cause and effect between the different infections (small-pox, measles, typhoid fever, gonorrhœa, erysipelas, and streptococcus infection, furunculosis, and staphyloccus infection, diphtheria, dysentery, grippe, pneumonia, acute articular rheumatism, and malaria) and the different forms of myelitis, giving to the word myelitis its most general meaning. This term, myelitis, includes

acute and chronic myelitis, either diffused or systematized. This proposition can only be proved by the study of cases followed by an autopsy.

2. All the infections appear to be able to start up all the different varieties of the diseases of the spinal marrow.

3. The different clinical types of myelitis may be caused by the infectious diseases. The most frequent forms of myelitis observed after the infections are the diffuse myelites, either acute diffuse myelitis (invading or non-invading, in a single focus or in disseminated foci) or chronic diffuse myelitis (in foci or in plates).

4. The clinical history of the infectious myelites does not depend upon the nature of the causal infection. In other words, myelitis may be the same clinically when it follows different infections, and the same infection may develop myelites which are clinically different. The clinical picture depends more upon the seat of the localization of the process upon the spinal marrow than upon the nature of the infection.

5. Since the micro-organisms may act upon the spinal marrow by their presence or by the toxins which they produce, it is difficult to say whether each infectious disease is the direct cause of the myelitis or whether each special affection gives rise to a common secondary affection of the spinal marrow. It is more probable, however, that the common infections (streptococcus, staphylococcus, colon bacillus) are more frequently the direct cause of infectious myelitis than is the character of the original infection.

6. In all cases the etiology of the infectious myelites is complex. The disease requires for its production the combination of an infection with an acquired or inherited neuropathic disposition.

7. The diagnosis, prognosis, and treatment of the infectious myelites depend upon the preceding considerations.

M. Vaillard treats the subject from the stand-point of pathological anatomy and experimentation. Infectious myelites are due either to the invasion of the spinal marrow by a virus which further develops in that situation or to the action of a toxin, secreted in the course of a preceding infectious disease, in an organ other than the medullary axis. In this latter instance the myelitis is caused by an intoxication of bacterial production. Infectious myelites come on unexpectedly at different periods after the infection which has opened a field for itself, and appear to follow either an acute or a subacute course. They may begin upon the complete cessation of complications, but they do not develop in the course of a slowly and gradually progressive chronic disease. The lesions which characterize the infectious myelites are found principally involving the parenchymatous elements, first and foremost the ganglion-cells of the anterior horns. The changes in the nerve-fibres of the white matter are frequent but inconstant; it is difficult to say if they are the result of a simple degenerative process or of a protopathic alteration. The neuroglia is usually uninvolved and the vascular lesions are none or, at least, insignificant. The lesions are diffused, but they have a tendency to concentrate in the neighborhood of the enlargements of

the cord. Some infectious agents, such as the virus of rabies and of the venereal disease of the horse, diphtheria bacilli, colon bacilli, streptococci, bacillus pyocyaneus, and the typhoid bacillus, are prone to produce paralyses. The same micro-organisms may give rise to nervous complications of a variable nature. Among animals inoculated in an identical manner with the same infectious agent, all do not ultimately present paralytic complications. Inherent conditions of the subject or of the micro-organisms may render the alterations of the spinal marrow more or less easy; the nervous cells of the different animals are not equally impressionable by the same poison, and, on the other hand, the virulence of the pathogenic agent may be susceptible to the very widest variations. To apply these conclusions to the interpretation of the different myelites observed in man will, perhaps, be premature. Still, it is difficult not to ascribe an infectious origin to infantile paralyses, the invasion, the clinical evolution, the eventual epidemicity, and the lesions of which betray all the characters of an infection. Acute spinal paralysis of the adult is too analogous to that of infancy not to accommodate itself to the same pathogenesis. Acute or subacute myelitis in men presents the greatest anatomical and clinical resemblance to the experimental myelites produced in the animals. Without a primary or secondary infectious process, one is scarcely able to explain those cases which supervene in the course of or at the end of a fever or of an acute disease, be it either so benign or so limited in its localization as gonorrhœa. The appearance of medullary accidents will be at times tardy; and it is in cases in which these accidents begin with all the appearance of spontaneity and without appreciable relation to a recognized infectious malady, or to an infection so small or so masked that it is ignored, that the myelitis appears to be idiopathic. It is difficult to say whether the nervous manifestations depend directly upon the primary infection or upon secondary infections, the intervention of which is so common.

OPHTHALMOLOGY.

IN CHARGE OF CHARLES A. OLIVER, A.M., M.D.,
Philadelphia, Pennsylvania,
AND
EDMUND LANDOLT, M.D.,
Paris, France.

Description of the Method of Operation employed for the Removal of an Epithelioma involving both the Upper and Lower Lids at the Outer Palpebral Commissure. (*Wills Hospital Reports*, vol. i., No. 1, 1895.) By Charles A. Oliver, M.D., of Philadelphia.

The first of the accompanying phototypes very imperfectly represents

Fig. 1.

Fig. 2.

Fig. 3.

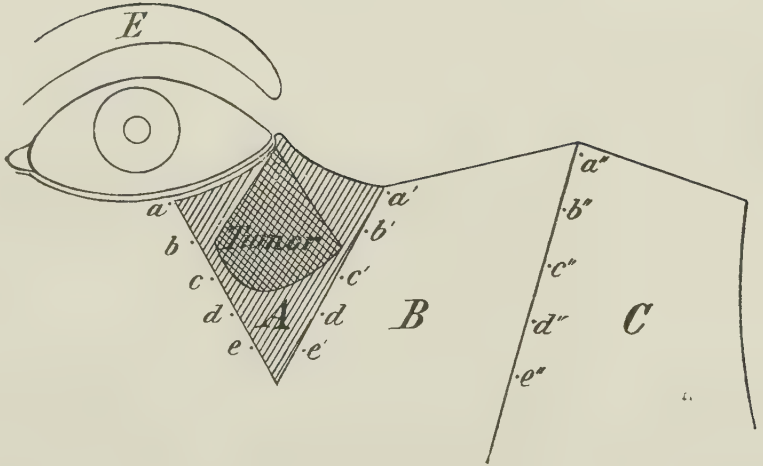
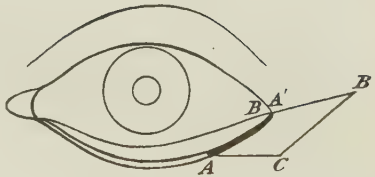


Fig. 4.



the size, position, and appearance of an epitheliomatous growth that was seen and successfully removed by the author.

As can be seen, there was a broad, inverted, kite-shaped tumor occupying the outer portion of the lower lid and extending up into the palpebral commissure. The growth, which was bossellated and firmly attached to the underlying tissues, was occupied by numerous small and several large areas of apparent cystic degeneration.

It will also be noticed that the outer portion of the upper lid was dragged slightly downward and inward, thus hiding the outer angle. The skin of both lids just beyond the ciliary borders was involved at the external angle. The disease did not appear to have invaded the conjunctival membrane. The eye itself was in good condition, and performed all of its functions properly.

While the patient was under the influence of ether, the following operation was performed upon both the upper and the lower lids. As shown in the wood-cut (Fig. 3), the growth included in a large triangular flap *A*, which was so shaped at the outer angle of the eye as to include the entire outer commissure, was first excised. The nasal border of the excised area, *A*, was next dissected sufficiently loose as to allow it some freedom and pliability. After this had been accomplished, the flap *B* was shaped, undermined, and slid over into the position of the previously excised area *A*, and fastened by a series of superficially placed sutures, *a a'*, *b b'*, *c c'*, *d d'*, and *e e'*, and a row of lateral ones placed along the superior border of the flap. In order to prevent the flap *B* from having a raw edge at its outer portion, and to prevent irregular cicatrization near the epitheliomatous area, a second large flap was shaped at *C*. This was carried directly up to the temporal artery, and given a broad base below by carrying the outer incision to the ramus of the jaw. After dissecting the tissues beneath the base of the flap and the adjacent skin around the angle of the jaw, this large flap was slid up and over, and fastened by a series of very superficial sutures *a' a''*, *b' b''*, *c' c''*, *d' d''*, and *e' e''*, and a row of lateral ones running along the upper border of the flap from *A'* to *A''* into the position occupied by the flap *B*. The lower outer portion of the flap *C* was lifted up and fastened in position by three deep sutures, thus leaving but a small triangular granulating area just in front of the ear. After the lower flaps had all been secured in proper position the tongue-shaped flap *E* was carefully dissected loose and freed. The point *B* (Fig. 4) was then twisted down and out, and fastened by a strong deep suture to the point at the external commissure, and the flap was stitched into its new situation by several superficial sutures. During the procedure there was profuse bleeding, which was arrested by heat and by torsion of the bleeding vessels. Each flap was made as thin and as clean-edged as possible. All adherent fat was excised. The flaps were kept warm by hot sponges, and the exposed raw surfaces were cleaned and freed from all blood-clots before the flaps were sutured into position. The entire operative field was dusted

with powdered iodoform, and the external surface was covered with antiseptic gauze and bandaged.

On the second day, the dressings were removed, and the flaps were found to be in excellent condition. The triangular free space in front of the ear was beginning to granulate. Two days later, the stitches in the upper lid and all the lateral stitches of the vertical rows of sutures were removed.

On the sixth day, a small area at the inner part of the lower portion of the large outer flap appeared somewhat tumefied. This was excised, giving egress to some pus. The cavity was cleaned, and allowed to heal by granulation. The upper stitches were removed. The flaps were thoroughly healed, and the granulating area in front of the ear was well filled with healthy tissue. There was no cicatricial dragging around the lids themselves. The external commissure had become as well shaped as its normal fellow, and the lid-movements were undisturbed in any way. Two weeks after the operation the granulating area had almost healed. One week later, but three weeks after the operative procedure, the patient was discharged cured. Fig. 2 shows the condition of the flaps some four months after the operation. At the present writing of the abstract, sixteen months after the operation, the scars are less visible, and, in fact, can barely be distinguished from the natural folds and creases of the skin.

Latent Astigmatism. (*Journal of the American Medical Association*, November 16, 1895.) By Horace M. Starkey, M.D., of Chicago.

Believing that this form of astigmatism plays a much more important *rôle* in the production of asthenopia than is usually supposed, the author has summarized his findings, with those of others, into the following:

1. Latent astigmatism is a frequent and important cause of asthenopia.

2. The latent astigmatism may in many cases be made manifest without a cycloplegic, and without interfering with the patient's business, by giving lenses which correct the manifest error, which may be worn a day or two, when an additional amount of astigmatism will be manifest, which may be corrected in the same way, and so on till all the latent trouble is unmasked.

3. This may be done without discomfort to the patient, and is therefore advantageous with the sceptical, irritable, and nervous.

4. Recent text-books do not give this subject the attention its importance deserves.

5. Astigmatism may be latent whether the axis of greatest curvature is vertical, horizontal, or diagonal.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF RICHARD C. NORRIS, M.D.,

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AND

LAWRENCE S. SMITH, A.B., M.D.,

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A Contribution to the Knowledge of Primary Tuberculosis of the Ovarian Tubes. (*Monatsschrift für Geburtshülfe und Gynäkologie*, 1895.) By E. G. Orthmann, M.D., of Berlin.

After an exhaustive reference to the literature on the subject of tuberculosis of the genital organs, in which sixty-eight authors are quoted, Orthmann describes very carefully two cases that came under his observation within the past year. The first was one of primary, double, tubal tuberculosis with secondary infection of the uterus. In the second case the uterus had not become involved. In both the operations were successful. As a result of his own experience and that of the other authorities Orthmann comes to the following conclusions:

1. Of the sexual organs in woman the ovaries and tubes are the ones most frequently attacked primarily by tuberculosis.

2. Primary tubal tuberculosis occurs in eighteen per cent. of all cases of tuberculosis of the female genital tract.

3. Sexual intercourse, labor, and the puerperium predispose to the infection and favor its rapid development.

4. Secondary infection from the tubes takes place most frequently in the peritoneum, next in the uterus, and then of the sexual organs, in the ovary. Ascites occurs relatively seldom, fifteen per cent. of the cases.

5. A positive diagnosis is possible in few cases. It can be made earliest when a simultaneous involvement of the uterus is manifested in the discharges or in fragments curetted from the endometrium.

6. Therapeutically, the diseased tubes should be removed as early as possible. If the uterus has become involved curettage followed by an application of caustics may be sufficient unless the muscular wall has become involved, in which case a complete hysterectomy is required.

What Factors are to be regarded in the Disinfection of the Hand. (*Monatsschrift für Geburtshülfe und Gynäkologie*, Bd. i., Heft 3.) By F. Ahlfeld, M.D.

The discussion over the paper of Reinicke, read before the *Leipziger Gesellschaft für Geburtshülfe*, led Ahlfeld to undertake a series of experiments to determine the effectiveness of the ordinary method of disinfecting the hands. As a result of one hundred and twenty-two experiments made on seventy-five different individuals he reached the following conclusions:

1. An essential factor in the success or failure in disinfecting the hands is their previous condition. Hands with long nails, deep grooves around the edges of the nails, and rough, fissured skin are very difficult to sterilize.

2. A second factor is the energy, both physical and mental, with which the disinfection is conducted.

3. In the sterilization, alcohol plays the most important *rôle*, on account of its germicidal action.

4. The operation should begin with the trimming of the nails. Then the hands should be scrubbed one or two minutes with soap and hot water. After the nails have been carefully cleaned the scrubbing should be continued again for one or two minutes. The water should be very hot and changed frequently during the process.

Careful observation of these points produced satisfactory results in all the experiments.

Lesions of the Fœtus in Eclampsia. (*Revue des Maladies des Femmes*, October 25, 1895.) By MM. Cassaet and Chambrelent.

These authors have made a histological examination of the kidneys and spleen of still-born infants of eclamptics and of children born of eclamptics who died soon after birth. Death was found to be due to two very different causes: 1. To hemorrhagic and degenerative lesions of the placenta; in these cases the fœtus died *in utero* and was often macerated at birth. 2. To histological alterations of the spleen and kidneys, resembling the lesions found in the organs of the mother. These lesions explain the great mortality in the infants of eclamptics, even when they are born living and well-developed.

In Regard to the Destruction of the Endometrium after Curettage. (*Centralblatt für Gynäkologie*, No. 36, 1895.) By J. Veit, M.D.

Veit reports a case similar in many respects to those reported by Fritsch and Küstner. The patient, a married woman, pregnant after a considerable period of sterility, had aborted incompletely and had been curetted three days afterwards. After that menstruation ceased for several months, and the woman supposed she was pregnant again. An examination, however, showed the uterus slightly longer but scarcely thicker than normal. A sound passed readily into the cervical canal for two centimetres, but could not be forced any farther. The canal ended abruptly at the internal os. By dilating the patulous portion of the cervix with a tent, Veit was able to stretch the occluded portion sufficiently to admit a fine probe. After treatment for six weeks he was able to establish a passage two millimetres in diameter through what proved to have been an adhesion of the uterine wall about one centimetre in width. Menstruation was re-established and has continued regularly every four weeks. The cases of obliteration of the uterine cavity so far reported have all occurred in puerperal uteri, and Veit thinks it almost impossible to remove the mucous membrane in the

non-puerperal condition so completely as not to leave enough remains of the glandular structures to reproduce the endometrium. In the puerperal uterus the conditions are quite different. The relaxation of the muscular wall no longer affords the protection to the deeper portions of the mucous membrane, and it would appear quite possible to remove every trace of it within a greater or less area, and, in case two such areas were brought in apposition, to have quite extensive adhesions constricting or even obliterating the cavity. He, therefore, advises against the thorough curetting of the puerperal uterus and favors the use of the fingers after the cervical canal has been fully dilated.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,
Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas,
AND
HENRY W. CATTELL, A.M., M.D.,
Demonstrator of Morbid Anatomy in the University of Pennsylvania; Prosector to the American Anthropometric Society; and Pathologist to the Presbyterian Hospital, the Institution for Feeble-Minded Children at Elwyn, etc.

Multiple Tumors of the Brain; Fibro-Cystoma of Pons and Cerebellum, and Multiple Fibro-Psammomata of Dura, Pia, Arachnoid, and Cortex Cerebri. (*Brain*, Part lxxii.) By F. W. Langdon, M.D., of Cincinnati.

The patient, a woman, thirty-two years of age, had, seven years previous to death, an attack of "cholera morbus," which was followed by more or less ill health described as nervous trouble. In November, 1890, her physician reports a chronic aural catarrh, not relieved by treatment and accompanied by sick headaches. In February, 1892, a marked papillitis of both eyes appeared. When next seen, January, 1895, the central vision was normal, but there was paresis of the right abducens with diplopia on the right side. The writer gives the prominent features of the case, when seen by him thirty-nine days before death, as follows: Violent paroxysmal pains in head, hyperæsthesia over right side of scalp, diplopia, bilateral deafness, left hemiparesis, and vomiting *with nausea*, optic neuritis, and paralysis of the abducens. From these symptoms a diagnosis was made of a tumor at the base of the brain on the *right side*, probably pressing on the pons Varolii, and involving the fourth, fifth, seventh, and eighth nerves, or their nuclei. No one cortical lesion could account for all the symptoms presented, but the absence of convulsions, monoplegia, or mental impairment seemed to exclude an extensive or multiple cortical involvement.

The autopsy revealed an ovoid neoplasm the size of a kidney-bean enclosed within the layers of the falx; a second, half the size of the first, situated at the superior margin of the falx; three similar growths projected from the inner surface of the dura of the convexity over the posterior ex-

tremity of the first and second frontal convolutions; a sixth protruded from the under surface of the dura at the right of the great longitudinal sinus; a seventh was enclosed in the meshes of the pia just anterior to the lamina cinerea; and the eighth and principal tumor came into view on dividing the tentorial attachment at the petrous margin. It was about the size of an English walnut. The left cerebellar hemisphere and the left half of the pons were compressed and atrophied, and the left flocculus was flattened and continuous with the under surface of the growth. The cranial nerves in apparent relation with the growth were the left fifth, sixth, seventh, and eighth. The ninth, tenth, and eleventh emerged normally, a few fibres entered the substance of the tumor, and the remainder disappeared at a point where the surface of the growth was broken into perhaps a hundred miliary nodules. The left twelfth was probably subject to mechanical pressure.

The author gives an analysis of the symptoms in the light afforded by the autopsy. The slight effects of so serious a lesion are due probably to the extremely gradual progress of the growth, allowing time for a considerable degree of accommodative adjustment on the part of the tissues involved. The implication of cranial nerves corresponds to the anatomical situation of the growth, with the exception of the fourth and fifth. The fourth was not involved, and the diplopia, which was the apparent result of its impairment, must be attributed to involvement of co-ordinating fibres by which harmony of action is brought about between the nuclei of the third, fourth, and sixth nerves. Although the fifth was seriously injured, sufficient fibres to carry on the function evidently escaped degeneration, as hyperæsthesia, anæsthesia, trophoneurosis of the left face, etc., did not occur. The right-sided hyperæsthesia over the forehead and scalp may be explained by the pressure exerted by the tumor from the left towards the right upon the right fifth nerve. The bilateral deafness was due to two factors,—first, the direct involvement of the left acoustic nerve; and, second, pressure on the pons affecting the fibres from the right nuclei in their course towards the cortex, through the pons, crus, and internal capsule. The absence of complete facial paralysis is explained by the fact that some fibres of the *portio dura* maintained their power of conduction. The left motor paresis was apparently due to pressure on the pyramidal fibres after their crossing. The vomiting preceded by nausea, contrary to the rule in cerebellar vomiting, would perhaps indicate that involvement of the vagus trunk or its nuclei was the cause. The relief from severe intracranial pain obtained by assuming a semi-opisthotonic position was due to partial removal of the weight of the brain-mass from the tumor, and especially from the left fifth nerve.

History and Post-Mortem Examination of a Rabid Dog. (*Pittsburg Medical Review*, November, 1895.) By J. Stewart Lacock, M.D.

The dog seemed to be sick about a week after fighting with a dog from

a neighborhood where several animals had died of suspected rabies, and ten days later he stopped eating, became nervous and uncontrollable, barked peculiarly, snapped at imaginary objects, and urinated very frequently. A veterinarian examined the dog and pronounced the disease as likely to be rabies. While being chloroformed the animal caught a man's hand and inflicted several lacerated wounds. It died the following day.

On post-mortem, the tongue and pharynx were found swollen and inflamed, the kidneys congested, the membranes of the brain congested, especially over the middle lobe of the cerebellum, the posterior extremity of the interhemispherical fissure, and the extreme posterior portions of the hemisphere of the cerebrum.

A portion of brain-tissue from the inflamed area was inoculated under the dura of a rabbit. It died rather suddenly of paralysis about fifteen days after inoculation. A second rabbit, inoculated from the brain of the first, died in the same manner. The cerebral tissues and membrane around the site of inoculation were congested in both cases.

BOOK REVIEWS.

THE INTERNATIONAL ENCYCLOPÆDIA OF SURGERY. Edited by John Ashhurst, Jr., M.D., LL.D. Vol. VII. (Supplementary Volume.) New York: William Wood & Co., 1895.

The object of this supplementary volume, as stated by the author, is to furnish the readers of the International Encyclopædia with an account of such additions as have been made to the science and art of surgery since the original work was published. In the seven years that have elapsed since the publication of the revised edition of the original work many of the authors have died, and the editor has exercised great judgment in the selection of authors to revise these articles. The well-earned success which was accorded to the original work naturally excited an unusual amount of interest in the present volume, and after a careful study of the various articles we cannot but feel that the authors have fulfilled the difficult task of bringing the various articles up to date in a most satisfactory manner. The reader will sometimes be disappointed in the shortness of some of the articles, but in these cases, on reference to the original article, it will usually be found to have been very fully presented, or that little new matter has been brought before the profession since its publication. On the other hand, some of the supplementary articles contain more matter than the original ones; this is notably the case in the article upon Cerebral Surgery.

The majority of the articles can justly be said to represent the most widely accepted and modern opinions upon their respective subjects, and as such cannot fail to be fully appreciated by the judicious reader. Among those which have impressed us most favorably are the articles by Ernst, on Inflammation; by Kammer, on Wounds and Wound Treatment; by Kiliani, on Diseases Complicating Wounds; by Curtis, on Tumors; by Nancrede, on Injuries and Diseases of Bursæ and Injuries of

the Head; and those by Dulles, Ashhurst, Keen, Lovett, Neilson and Davis, Harte, Forchheimer, and Ransohoff. We congratulate the editor, whose masterly editorial skill has brought to a successful completion this great work upon surgery. We feel sure that those who possess and appreciate the value of the original work will increase its value by the acquisition of the present volume, which may be considered a concise and reliable exposition of the surgery of to-day. H. R. W.

Da Costa's Medical Diagnosis. Eighth edition. Revised. Philadelphia: J. B. Lippincott Company, 1895.

This book is well known to both the student and practitioner of medicine, for it is now thirty-one years since the first edition was issued; since that time it has been translated into many languages for use as a text-book, while in this country it has always remained a standard work on diagnosis.

The present edition, the eighth, maintains the former favorable impression of its worth: the writer possesses that happy faculty of grouping together kindred diseases, and with few words throws the full light of differential diagnosis upon them: the description of disease is concise, accurate, and frequently picturesque. Certain it is that it makes pleasant reading and enjoyable study.

Dr. Da Costa has advanced with the progress of medical science; he is ready to accept the more recent discoveries in bacteriology, or at least to give them due trial. The tubercle bacillus, the bacillus coli communis, the amœba coli, the plasmodium malariæ, the pneumococcus, the diphtheria bacillus, are all given their due place as causative factors in the production of disease.

The most extensive chapter in the book is that on Diseases of the Brain and Spinal Cord: the great strides made in this direction have necessitated much new material in the later edition: much space is also devoted to Diseases of the Lungs. This chapter reads well, and is one from which the younger man can gain many valuable hints in diagnosis.

Your reviewer has but few criticisms to make upon this work: the most of them concern disease of bacterial origin, about which there still exist reasonable doubts in the minds of some writers.

Dr. Da Costa would separate tuberculous and scrofulous infiltration of the lungs (page 384) from one another: he states that he has not yet seen reports of cases in which the tubercle bacilli were found in the latter condition: it is now generally acknowledged that the conditions are due to the same cause, though the channel of infection differs.

On page 343, it is stated that the tubercle bacillus is equal in length to the diameter of a red blood-corpuscle; it is really but one-third or one-fourth of the diameter. The red blood-corpuscle averages from six to seven μ in diameter, and is our standard of size for comparison of bacilli; the tubercle bacillus is from one and a half to three and a half μ in length.

He differentiates diphtheria from membranous croup and does not consider the latter contagious (pages 351, 352). Pathologists are now agreed that the course of these two conditions is identical, but that the dissimilarity of tissues accounts for the symptomatic and systemic differences.

The reader will not find in this book minute directions for the performance of all clinical laboratory work; he will find the more important methods for staining pathogenic micro-organisms in the blood, tests for the gastric contents, for the urine, etc., but they are not given in detail, so that a beginner might utilize them. Some recent books on medical or clinical diagnosis are better in this respect; but a more beautiful description of disease, with its subtile array of confusing symptoms, one cannot find elsewhere than in this volume. The printing is excellent; the illustrations, though rather limited in number, are mainly original and good.

J. A. S.

PÆDIATRICS: THE HYGIENIC AND MEDICAL TREATMENT OF CHILDREN. By Thomas Morgan Rotch, M.D., Professor of the Diseases of Children, Harvard University. Illustrated. Pp. 1124. Philadelphia: J. B. Lippincott Co., 1895.

It is with sincere pleasure that we examine this volume, the appearance of which has been so long expected. There has been no work of anything like its size and scope from the pen of any one American author since the appearance of the well-known text-book of J. Lewis Smith. Dr. Rotch's prominent position in the pædiatric world and the quality of his writings heretofore lead us to expect a production which shall be a valuable addition to medical literature; and in this expectation we are in no way disappointed. The work is a thoroughly scientific one, and, what is even more apparent, one which bears the stamp of decided originality. The illustrations with which the book is well provided are nearly all original. There are detailed, too, a large number of cases seen by the writer. Such detailed cases are, we think, always of great service, since they impress better than by any other means the statements made. The text is in the form of a series of lectures addressed to a class. We regret this, but this is the only criticism we have to make; for, although this style adds to the interest in reading, it detracts from conciseness and from convenience for ready reference.

The first chapter discusses the infant at term, and those chapters immediately following discuss the normal development of the child; all showing a great deal of care in preparation. Here the reader will find a grouping of facts which he will seek for in vain in other books on pædiatrics. The next chapter, on the hygiene of the nursery, likewise contains many facts usually omitted from text-books of pædiatrics, but the knowledge of which is not the less needed by physicians. The chapter on feeding is large. The author here expresses in full his views upon the subject with which his published writings have already made us acquainted. Among other things he gives a description of a milk laboratory. This will be useful to the many not familiar with this method of preparing food for infants, which is becoming rapidly popular.

The remainder of the volume can hardly be reviewed in detail. We may call especial attention to the chapters on the blood and its diseases, the diseases of the new-born, and the diseases of the gastro-enteric tract. In the latter chapter the author presents the system of classification adopted provisionally by the American Pædiatric Society,—a classification intended to simplify the study of diseases of this nature and its complicated nomenclature. The arrangement, as stated, is provisional and by no means perfect, and will doubtless be modified later, yet it is a step in the right direction.

We have already referred to the illustrations of the volume. Among these are a large number of reproductions of photographs. We note also eight colored plates very well executed. J. P. C. G.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE, FOR THE USE OF PHYSICIANS AND STUDENTS. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc. Ninth edition. Revised and corrected. With a colored plate and wood engravings. 12mo. Pp. 276. Cloth, $1.25. Philadelphia: P. Blakiston, Son & Company, 1895.

The value of this work to the general practitioner and student is attested by the fact that it has already passed through eight editions, and this, the ninth, comes to us enlarged by additions which bring the volume up to date. While it is of advantage to the general practitioner and to the student, the book is also of practical benefit to the specialist and to the advanced student of urinology. The methods for

performing the complicated analyses for the detection of such substances as pepton and aceton are given clearly and accurately, so that the book is an important laboratory guide. Perhaps, in a future edition, it would be well to add the methods for detecting xanthin, hydroxanthin, and other leucomaines, the significance of which in producing migrane, gastric neuroses, and reflex epilepsy has recently been pointed out by Rachford, of Cincinnati. A French translation of the work has just appeared in Paris, under the editorship of Drs. Gautrelet and A. S. Clarke.

J. M. S.

BOOKS RECEIVED.

WILLIAM WOOD & CO., NEW YORK.

THE INTERNATIONAL ENCYCLOPÆDIA OF SURGERY. Edited by John Ashhurst, Jr., M.D., LL.D. Vol. VII. Supplementary volume.

OLIVER & BOYD, EDINBURGH.

NOTES ON SURGERY FOR NURSES. By Joseph Bell, M.D., F.R.C.S. (Edin.), Consulting Surgeon to the Royal Infirmary, and Surgeon to the Royal Edinburgh Hospital for Sick Children. Fourth edition, thoroughly revised. With an additional chapter of General Advice to Nurses. 12mo. Pp. 180. Cloth, 2/6.

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P. BLAKISTON, SON & CO., PHILADELPHIA.

SURGERY. A Practical Treatise with Special Reference to Treatment. By C. W. Mansell Moullin, M.A., M.D., Oxon., Fellow of the Royal College of Surgeons; Surgeon and Lecturer on Physiology to the London Hospital; Formerly Radcliffe Travelling Fellow and Fellow of Pembroke College, Oxford, England. Assisted by various writers on special subjects. With 623 illustrations. Third American edition, revised and edited by John B. Hamilton, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Rush Medical College, Chicago; Professor of Surgery, Chicago Polyclinic; Surgeon, formerly Supervising Surgeon-General, United States Marine Hospital Service; Surgeon to Presbyterian Hospital; Consulting Surgeon to St. Joseph's Hospital and Central Free Dispensary, Chicago; Secretary-General of the Ninth International Medical Congress, etc. 8vo. Pp. 1250. Cloth, $6.00.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE, FOR THE USE OF PHYSICIANS AND STUDENTS. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc. Ninth edition. Revised and corrected. With a colored plate and wood engravings. 12mo. Pp. 276. Cloth, $1.25.

SPECTACLES AND EYEGLASSES; THEIR FORMS, MOUNTING, AND PROPER ADJUSTMENT. By R. J. Phillips, M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmic Surgeon to the Presbyterian Hospital in Philadelphia. Second edition, revised. With 49 illustrations. 12mo. Pp. 100. Cloth, $1.00.

THE JOHNS HOPKINS PRESS, BALTIMORE.

THE JOHNS HOPKINS HOSPITAL REPORTS. Report on Pathology, IV. Deciduoma Malignum. By J. Whitridge Williams, M.D.

TRANSACTIONS.

TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION, TWENTY-SEVENTH ANNUAL SESSION, Dallas, Texas, April 23, 24, 25, and 26, 1895. Publication Committee, H. A. West, M.D., H. P. Cooke, M.D., and David Cerna, M.D.

ITEMS OF INTEREST.

Prizes to be awarded by the Royal Academy of Medicine of Belgium.

THE following prizes will be awarded by the Royal Academy of Medicine of Belgium. First, a prize of five hundred francs for "the chemic and microscopic study of the plants of the family of solanaceæ employed in medicine and of their products used in pharmacy." Those competing will lay stress upon the methods of dosage of the active principles contained in these drugs. The competition for this prize will be closed on the 20th of June, 1896. Second, a prize of one thousand francs will be awarded to the author of the best essay upon "the *rôle* of the wandering cells coming from the blood and from the lymph in the organization of the tissues of warm-blooded animals." Essays must be received before the 15th of November, 1896. Third, a prize of eight thousand francs, offered by an unknown benefactor, will be awarded for the best essay which will "elucidate by clinical facts and by experiments the pathogenesis and the therapeutics of diseases of the nervous centres and principally of epilepsy." This competition closes the 15th of September, 1899. As encouragements, from three hundred to one thousand francs will be ordered for those authors who shall not deserve the prize, but whose works shall be considered worthy of a recompense.

A sum of five thousand francs and one of twenty-five thousand francs will be given, besides the prize of eight thousand francs, to the author who shall have realized the highest progress in the therapeusis of the diseases of the central nervous system; such will be, for example, the discovery of a curative remedy for epilepsy.

The prize of seven hundred and fifty francs, founded by Dr. Da Costa Alvarenza, will be awarded on the 15th of January, 1896. Manuscripts

in competition for this prize will be received up to that date. According to the terms of the will of M. Alvarenza the interest of the capital shall constitute an annual prize which shall be called The Alvarenza Prize of Piauhy (Brazil). This prize will be given, on the anniversary of the death of the founder, to the author of the best unpublished memoir or work, the subject of which shall be of the author's choice, upon any branch of medicine, which work shall be deemed worthy of recompense, after an annual competition has been established and followed by the examination of the works sent in accordance with the rules of the academy. If none of the works are deemed worthy of recompense, the value of the prize will be added to the capital.

The conditions of the competition are as follows: Active and honorary members of the academy cannot take part in the competition.

The memoirs, legibly written in Latin, French, or Flemish, should be addressed to the secretary of the academy, Brussels, post-paid.

The following are excluded from the competition:

1. That memoir which does not fulfil the preceding conditions.

2. Those memoirs the author of which is either directly or indirectly made known.

3. Those which have been published in whole or in part, or which have been presented to another scientific body.

The academy requires the greatest exactness in respect to quotations; thus, that mention be made of the edition and of the page of the original text.

The memoir for the competition and the sealed envelope, in which the name and address of the author are indicated, should bear the same inscription. Pseudonymes are prohibited.

The envelope accompanying the successful work is opened by the president in public meeting.

When the academy accords only a recompense for a memoir, the envelope which accompanies that memoir is only opened at the request of the author. This request should be made within six months. After the expiration of that time the honorarium is not awarded.

The manuscript submitted in competition cannot be reclaimed; it is deposited in the archives of the college. The author may always have a copy of his work made by one of the employés of the secretary of the academy after the announcement of the result, at his own expense.

The academy awards, gratuitously, fifty copies of the memoir which it has ordered printed to the author, and gives him the opportunity of obtaining a larger number at his own expense.

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TO

INTERNATIONAL MEDICAL MAGAZINE,

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